86-534

No.

Supreme Court, U.S.
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JOSEPH F. SPANIOL, JR.
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1986

CBS INC.,

Petitioner,

vs.

MOLECULON RESEARCH CORPORATION,

Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

LEWIS H. ESLINGER
WILLIAM E. PELTON
600 Third Avenue
New York, New York 10016
Attorneys for Petitioner

September 29, 1986

Of Counsel:
ABIGAIL F. COUSINS
ESLINGER & PELTON, P.C.
600 Third Avenue
New York, New York 10016

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QUESTIONS PRESENTED

1. Is the decision below of the Court of Appeals for the Federal Circuit in conflict with the decision of this Court in *Egbert v. Lippmann* 104 U.S. 333 (1881) concerning the question:

Whether the defense of public use under 35 U.S.C. 102(b) is established where, prior to the critical date, the inventor demonstrated and explained working models of his invention to friends and colleagues at college, at his home and at his place of employment and also gave a third person a working model of his invention to take home whereby it was removed from the inventor's possession and personal charge, and all of the foregoing took place without any express reservation of secrecy or confidentiality?

2. Whether this Court should intervene where (a) the Court of Appeals for the Federal Circuit in this case has sanctioned an approach to claim interpretation, previously approved by the Court of Claims, permitting unclaimed structure having perceived advantages not mentioned in the patent to be included in the claims in order to prevent the claims from being held invalid for obviousness under 35 U.S.C. 103, and (b) the Court of Appeals for the Federal Circuit had previously rejected such claim interpretation, as approved by the Court of Claims, and had refused to permit unclaimed structure to be used to support the patentability of such claims?

3. Is the decision below of the Court of Appeals for the Federal Circuit in conflict with the procedural requirements of Rule 52(a) Fed. R. Civ. P. as established by this Court in *Pullman-Standard v. Swint*, 457 U.S. 273 (1982) concerning the question:

Whether the Court of Appeals for the Federal Circuit may on its own make findings relating to a document that is relevant and in evidence where such document was not considered by the district court and on which the district court made no findings?

PARTIES

Pursuant to Rule 28.1, the lists of parents, subsidiaries and affiliates of CBS Inc. appears *infra* (App. A, p. A-68).

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OPINIONS BELOW

The opinion of the Court of Appeals for the Federal Circuit (App. A, p. A-1) is reported at 793 F.2d 229. The opinion of the District Court is reported at 594 F.Supp. 1420 (App. A, p. A-22).

JURISDICTION

The judgment of the Court of Appeals for the Federal Circuit was entered on May 16, 1986 (App. A, p. A-60). The Order of the Court of Appeals denying the Petition for Rehearing of CBS, Inc. was entered on July 1, 1986 (App. A, p. A-59). The mandate of the Court of Appeals issued on July 8, 1986 (App. A, p. A-60). The jurisdiction of this Court is invoked under 28 U.S.C. §1254(1).

STATUTES INVOLVED

Sections 102(b), 103, 112, second paragraph, and 301 of the Patent Act, Title 35 U.S.C., and 28 U.S.C., ¶¶ 1254(1), 1331, and 1338(a) are reproduced in Appendix A (p. A-61, 62).

STATEMENT OF THE CASE

This is an action for patent infringement, initially alleging infringement of claims 1-2, 3-5, 6 and 9 of U.S. Patent No. 3,655,201 ("Nichols patent") (App. B, p. B-1) brought by Moleculon Research Corp. ("Moleculon") as assignee of the inventor Larry B. Nichols ("Nichols") against CBS Inc. ("CBS") as successor to Ideal Toy Corporation ("Ideal").

The accused products are the once popular 3x3x3 Rubik's Cube Puzzle, plus two 2x2x2 and one 4x4x4 cube puzzles.

Claims 1 and 2 were disclaimed by Moleculon. The district court adjudged Claim 6 invalid under 35 U.S.C. §103 in light of two prior art patents to Gustafson. No appeal was taken from the holding of invalidity of Claim 6.

The district court adjudged that Claims 3-5 were valid and infringed by each accused cube; Claim 9 was adjudged valid but infringed only by the two 2x2x2 cubes.

The Court of Appeals for the Federal Circuit affirmed the holding of validity of Claims 3-5 and 9 as well as infringement of Claim 9. In regard to Claims 3-5, the Court of Appeals for the Federal Circuit held that there was no literal infringement and remanded to the district court for consideration the issue of whether the 3x3x3 and 4x4x4 cubes infringed Claims 3-5 under the Doctrine of Equivalents.

Federal jurisdiction in the court of first instance is based upon Title 28 U.S. Code §§1331 and 1338(a).

A. *The Nichols Patent*

The Nichols patent discloses a puzzle which, in its principal embodiment, is formed of eight cube pieces that are engaged together to form a composite 2x2x2 cube. The exposed surfaces of the cube pieces are provided with different indicia which together form a puzzle pattern. The object of the puzzle is to randomize the puzzle pattern and then to return the puzzle pattern to its unrandomized form by rotating different groups of four cube pieces around three mutually perpendicular axes of rotation. Claim 9 calls for precisely the puzzle pattern identified by the district court as the Nichols inventive "concept", i.e. six visually distinct indicia on the six cube surfaces. Claims 3-5 are broader in that the claimed pattern encompasses virtually any surface indicia, such as two colors, as long as they are formed by the combined outer surfaces of the cube pieces.

When it came time to apply for a patent Nichols included his specific 2x2x2 puzzle but he also endeavored to cover other possible forms of the concept, of which the 2x2x2 cube was only one embodiment. Nichols described his concept as not being limited to cubical forms; whether it was a big cube cut into eight smaller cubes or a sphere cut into eight octants, the principal of the division of space itself into eight parts was the same in both cases. Nichols stated that once the eight component structure existed, whether it was a cube out of cubes or a sphere out

of octants, the operation to be performed on all of them was the rotation of the components on one side of the plane vis-a-vis those on the other side of that plane. Accordingly, in addition to the cube form, the Nichols patent states that "a sphere divided into eight octants represents the same concept in a different form," (App. B, p. B-3 Col. 2, lines 31, 32) and Fig. 4 is an illustration thereof.

Nichols told the Patent and Trademark Office that his invention was not limited to cubes or spheres — in fact he described cubes and spheres as merely alternate forms or embodiments of his invention. Nichols' patent does not mention any advantages of one form over another; it never says that any particular form, whether cube, sphere or any other form, is the essence of the invention.

B. *The Gustafson Patents*

Unknown to Nichols during prosecution of his patent, and uncited by the Examiner, were two prior art patents to Gustafson (App. B, p. B-5, B-11). The Gustafson patents disclose a puzzle consisting of eight shell pieces engaged together to form a sphere and arranged to slide circumferentially relative to each other around a central spherical core. The shell pieces are colored on their exposed surfaces so that together they form a puzzle pattern. The Gustafson puzzle is operated by precisely the same rotational steps as called for in Claims 3-5 of the Nichols patent. The Gustafson puzzle pattern is first randomized and then restored to its original form by rotation of different groups of four shell pieces around three mutually perpendicular axes.

Moleculon disclaimed claims 1 and 2 before trial (App. A, p. A-63) because they read on Gustafson's spherical embodiment of Nichols' invention, and the district court found claim 6 invalid as obvious in light of Gustafson. Nichols Claims 3-5 and 9 escaped being declared obvious in light of Gustafson because "the advantages of the Nichols cube as a puzzle would not have been obvious," (App. A, p. A-46, A-47) despite the fact that Nichols himself never suggested to anyone, anywhere, that the cube embodiment of his invention had any advantage as a puzzle over his spherical embodiment.

C. *Citation Of Prior Art*

On May 24, 1982, the day before this action was instituted, Moleculon filed in the United States Patent and Trademark Office a Citation of Prior Art (App. A, p. A-64) under 35 U.S.C. §301 referring to the Gustafson patents. These patents had been brought to the attention of Moleculon by Ideal in August 1981. This document was filed in an attempt to distinguish the patent claims over the Gustafson patents. The Citation was totally ignored by the district court. The Court of Appeals considered the Citation on its own but rather than remanding to the district court to make findings of fact on the Citation the Court of Appeals proceeded on its own to make such findings.

ARGUMENT

A. *Public Use.*

By 1959 Nichols had conceived his invention, reduced it to practice, and completed all experimental use. From then until the critical date, March 4, 1969, he showed and explained working models of the invention to his friends and collegues at college, at his home and at Moleculon—in other words to people everywhere he went. It was not concealed from any person who happened to encounter it, and Nichols did not hesitate to explain the workings of the puzzle when asked to do so. There was no mention of secrecy to anyone.

While working at Moleculon as a scientist in 1968 Nichols made a wooden model of his puzzle. Nichols took the wooden model to his office at Moleculon from time to time to work on it or to play with it. The model was not covered or concealed in Nichols' office. It was seen in Nichols' office by Dr. Arthur S. Obermeyer (Obermeyer), Moleculon's President, and by other employees. Nichols explained to Obermeyer how the puzzle worked. With Nichols permission Obermeyer took the model to his home to study and to evaluate. Obermeyer, in fact, showed the puzzle to his wife. (App. A, p.A-66, 67) Obermeyer was under no express obligation of secrecy or confidentiality.

Within a few days of taking the puzzle home Obermeyer discussed with Nichols the possibilities of commercializing the

puzzle. Obermeyer inquired whether Nichols had any interest in commercializing this puzzle and Nichols expressed no intention of doing anything about the puzzle himself. Obermeyer proposed that Moleculon, which had licensing expertise, explore the possibilities of licensing the puzzle for commercial exploitation. Nichols was promised that he would be compensated for whatever Moleculon obtained as a result of any sales of the invention. Nichols accepted this offer and agreed not to undertake to exploit the puzzle himself. At Obermeyer's insistence Nichols prepared written descriptions of the puzzle for use in connection with future sales efforts. On behalf of Moleculon Obermeyer then contacted Parker Brothers concerning possible disclosure to it of the Nichols puzzle.

All of the foregoing occurred more than one year before the application for the Nichols patent was filed on March 4, 1970. 35 U.S.C. §102(b) provides that "[A] person shall be entitled to a patent unless - . . . the invention was. . . in public use. . . more than one year prior to the date of the application for patent. . ."

The district court found that there was no public use because all uses of the Nichols puzzle prior to the critical date of March 4, 1969 were "private use for his [Nichols] own enjoyment" (App. A. p. A-31). Nichols' interactions with Obermeyer and with others to whom Nichols demonstrated his puzzle were characterized by the district court as "such that Nichols at all times retained control over its [the model's] use as well as over the distribution of information concerning it." (App. A, p. A-32) The district court found that neither Obermeyer nor the others to whom Nichols demonstrated his puzzle were sworn to secrecy but that Nichols had "a legitimate expectation of privacy and confidentiality". (Id.) The district court also found that neither Obermeyer nor the others to whom Nichols demonstrated his puzzle had any basis for inferring that the puzzle was being given over for their free and unrestricted use. (Id.) The Court of Appeals determined that the district court's characterization of the evidence is "entirely apt and we see no ground for reversal". (App. A, p. A-9)

Under this Court's decision in *Egbert v. Lippmann, supra* the defense of public use is established where a transfer of possession and personal charge of a completed invention is made to another without restriction prior to the critical date. In *Egbert*, the inventor and the person to whom the invention was disclosed and by whom it was used prior to the critical date were "intimate friends" (104 U.S. at 335). No explicit restriction as to nondisclosure was placed upon the transferee friend. The inventor eventually married the friend and, at one point, he asked his wife to rip open an old corset in order to show and explain the later patented corset steels to one Joseph A. Sturgis, a friend, in the inventor's home (104 U.S. at 335). On these facts, this Court held that the defense of public use was established.

The decision of this Court in *Egbert* cannot be reconciled with the opinions below. The act of the inventor in *Egbert* in giving the corset steels to his girlfriend is exactly what Nichols did with Obermeyer. The act of the inventor in *Egbert* in showing the corset steels to Sturgis is exactly what Nichols did with his friends, classmates, associates and fellow workers. There is no dispute in the evidence in the present case that all uses of the Nichols puzzle were with Nichols' consent and allowance.

The reason why the Obermeyer use of the Nichols puzzle was a public use was stated in *Egbert* where this Court recognized (at page 337) that the "initimate" girlfriend to whom the invention had been given "might have exhibited them to any person she pleased, or might have made other steels of the same kind, and used or sold them without violation of any condition or restriction imposed on her by the inventor". Obermeyer was similarly free to exhibit it to others, to make other puzzles of the same kind and to use or sell them freely, that is, to do any of the things enumerated by this Court. In addition, when Obermeyer took Nichols wooden cube puzzle home for a few days, he felt free to exhibit it to his wife, and did so, and might have made cubes of the same kind and might have used or sold them without violation of any condition or restriction imposed on him by Nichols. Nichols' transfer of possession and personal charge of the puzzle to Obermeyer constitutes a form of abandonment.

The circumstances in the present case which caused the lower courts to conclude that Nichols retained control, namely that the puzzle was disclosed to "close colleagues" (App. A, p. A-31) whose "personal relationships" (App. A, p. A-31) with Nichols were such that Nichols retained a "legitimate expectation of privacy and confidentiality" (App. A, p. A-32), do not distinguish over *Egbert*. In *Egbert*, the personal relationship between the inventor and his soon to be wife was no more remote, the disclosures no more free and unrestricted, and the control no less evident than what the lower courts concluded in the present case. In *Egbert*, the transfer from the inventor was held to be unrestricted despite the obvious close personal relationship between the inventor and the transferee. Clearly, under *Egbert*, this Court would require some affirmative act on the part of the inventor to place a restriction upon the transfer in order to avoid the later imposition of the defense of public use. The requirement of a restriction in situations where, as here, a surrender of possession and personal charge of a completed invention is made would strengthen the patent system. It would provide certainty and predictability in the law instead of creating gossamer underpinnings for the public use defense arising out of subjective and unspoken expectations of the transferor and transferee.

The writ should be granted because the Court of Appeals for the Federal Circuit has, in the decision below, eroded the defense of public use far beyond what this Court has heretofore permitted. The effect of the decision below is that public use can not be proven where one who surrenders possession and personal charge of a completed invention subjectively relies upon the presumed goodwill of the transferee, even with no evidence that an actual understanding had passed between them. If the decision below stands, public use is not shown either where *nothing* is said to the transferee or where a confidentiality agreement is reached. Accordingly, the public use defense has been eroded to the point of being viable *only* where an express waiver or abandonment occurs. Given the obvious extraordinary degree of public disclosure which can result from successive transfers based upon subjective belief in the goodwill of others, the decision below nearly reads the salutary defense of public use out of the statute.

B. *Obvious*

The Court of Appeals for the Federal Circuit in its decision below has retreated from its interpretation of controlling authorities of this Court in favor of a contrary method of claim construction approved by the Court of Claims, a predecessor court. Specifically the Court of Appeals for the Federal Circuit has permitted the advantages of structure not recited in the patent claims to be considered in connection with the issue of obviousness of those claims under §103. If the claim language as issued is ignored by the courts, and claims are upheld on the basis of unrecited structure having alleged unobvious advantages not disclosed in the specification, the statutory requirement that patent claims "particularly [point] out and distinctly [claim] the subject matter which the applicant regards as his invention" (35 U.S.C. §112, second paragraph) will, in effect, have been abandoned. The result may be to uphold more patents but the lack of certainty as to the scope of claim coverage will be crippling to industry. This court's power of supervision is required to prevent injustice.

The district court found (App. A, p. A-46) and the Court of Appeals agreed (App. A, p. A-11) that patentability of claims 3-5 is premised on the unclaimed but perceived superiority of the cube format as a puzzle as contrasted to the spherical format. Nowhere, however, in his patent does Nichols mention any superiority as a puzzle of one embodiment of his invention over another; nowhere does he premise patentability on superiority of the cubical embodiment over the spherical embodiment. If Nichols had wanted to assert unexpected results or advantages as a reason for non-obviousness for the cube form of his puzzle, he was obligated to state these in his patent - but he did not.

In addition, the district court found that the method of solving Gustafson's spherical form of the invention is identical to the method (Claims 3-5) of solving Nichols cubical form (App. A, p. A-44, 46). Claim 3 reads on Gustafson except for Claim 3 being limited to the cube format. Nevertheless the district court conceded that Claims 3-5 are broad and are not limited to a "preselected pattern" consisting of a distinct indicium on each

of the six faces of the cube (App. A, p. A-45). Neither is the specification of the Nichols patent so limited. The patent specification significantly suggests that "*fewer* than six colors may be used thereby making the restoration of the predetermined pattern *simpler* to achieve" (emphasis added). (App. B, p. B-3, col. 2, lines 36-37).

Nevertheless the district court approached the issue of validity as a contest between puzzles and not as a patent case and thereby relied upon alleged advantages of one puzzle embodiment selected from the patent specification, i.e., the complexity of a puzzle pattern in which each of the 24 exposed faces of the eight cube pieces constitutes a *distinct* element in the puzzle pattern, and held that this inventive "concept" was nonobvious.[1] (App. A, p. A-46) Claims 3-5, which do not define that puzzle pattern, were nevertheless upheld on the basis of this unclaimed puzzle concept. The trial court compared this unclaimed "concept" with the prior art instead of comparing the claims with the prior art as it should have done.

In affirming this approach the Court of Appeals has permitted the advantages of unclaimed structure defining only one of several embodiments covered by Claims 3-5 to distinguish those claims from the prior art. The Court of Appeals has thereby approved the implicit addition of limitations to a claim in order to save the claim from invalidity. The law on this point has been placed in flux by the opinions below.

The Court of Appeals has previously interpreted this Court's decisions[2] as forbidding the addition of unrecited limitations to a claim even where those limitations may be found in the patent specification. *Environmental Designs, Ltd. v. Union Oil Co.*

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[1] Since the cube puzzle has six faces, use of each of the 24 exposed faces of the cube pieces as a "distinct" element of the puzzle pattern requires the use of at least six indicia, e.g., six colors.

[2] *Smith v. Snow*, 294 U.S. 1 (1945); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, reh den 365 U.S. 890 (1961).

of California, 713 F.2d 693 at 699 (Fed. Cir. 1983) cert den 464 U.S. 1043 (1984); *Raytheon Co. v. Roper Corp.*, 724 F.2d 951,957 (Fed. Cir. 1983) cert den 105 S.Ct. 127(1984); *Jones v. Hardy*, 727 F.2d 1524, 1527-28 (Fed. Cir. 1984).

In the present case, however, the Court of Appeals has retreated from such precedent and has instead implicitly resurrected a minority analytic approach to claim construction previously embraced by the Court of Claims, the precedents of which are also binding on the Court of Appeals.[3] This minority approach would permit limitations in the patent specification to be included in the claims in order to prevent invalidity. *Decca Ltd. v. United States*, 420 F.2d 1010 (Ct. Cl. 1970) cert den 400 U.S. 865 (1970). At least one judge of the Court of Appeals has expressly felt himself bound to follow the precedent of the Court of Claims on this very issue of claim construction. *SSIH Equipment S.A. v. U.S. Intern. Trade Com'n.*, 718 F.2d 365, 384 (Fed. Cir. 1983). The Court of Appeals is thereby revealing ambivalence as to this issue. The problem is acute because the two approaches to claim interpretation yield conflicting results.

There is no question here that reading the advantages of an unclaimed puzzle pattern into Claims 3-5 permitted those claims to survive petitioner's invalidity challenge under 35 U.S.C. §103 in view of Gustafson. The district court found that Gustafson's spherical puzzle is solved by the same rotational steps recited in Nichols Claims 3-5 (App. A, p. A-44, 46). Accordingly, Nichols Claims 3-5 differ from Gustafson only in the use of cubes. That fact alone, however, without reciting the puzzle pattern, does not save Claims 3-5. Like Nichols, Gustafson suggested a variety of possible puzzle patterns. (App. B, p. B-8, Col. 3, lines 41-45). In addition, the district court concluded that the possibility of the cubical form of the Gustafson puzzle would have been obvious to one of ordinary skill in the art (App. A, p. A-46). If more is needed the Nichols patent confirms this conclusion. In the patent text Nichols *equates* his cubical form with his

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[3] In *South Corp. v. United States*, 690 F.2d 1368, 1370 (Fed. Cir. 1982), the Court of Appeals declared itself bound by the precedent of the Court of Claims.

spherical form (App. B, p. B-3, col. 2, lines 31-32). Since the structural differences between Gustafson's spherical puzzle and Nichols' spherical embodiment (Fig. 4 of the Nichols patent) are not significant,[4] Nichols' own admissions establish the obviousness of the puzzle defined by Claims 3-5 in view of Gustafson. Accordingly, Claims 3-5, which do not intrinsically display the unobvious advantages relied upon by the lower courts, would have been held to be invalid under 35 U.S.C. §103 had the district court not credited them with the advantages of unrecited structure.

It is clear therefore that in this case and others like it, the foregoing conflicting analytic approaches to claim construction would yield different results under 35 U.S.C. §103. The existence of conflicting interpretive rules introduces intolerable uncertainties in the statutory structure governing the drafting and enforceability of patent claims.[5] This Court's supervisory authority should be exercised to eliminate the uncertainty and with it any possibility of arbitrary choices between conflicting precedent or methods of claim construction.

C. *The Citation of Prior Art*

The scope of Claims 3-5 and 9 has been hotly disputed in this action. It is well established that, to ascertain the true meaning of disputed claim language, resort should be made to the claims

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[4] The district court said: The only difference between Gustafson's sphere and the Nichols' sphere is that the user of the Gustafson puzzle rotates sets of octant shaped shells which are held into a composite sphere by a tongue-in-groove arrangement involving a spherical core, while the user of the Nichols' sphere rotates sets of octant shaped pieces having a plurality of interior surfaces which are held together in a composite sphere by magnetic or mechanical means. While there is no outright concession by Moleculon in the briefing, I do not understand it to seriously contend that a puzzle designer of ordinary skill having been exposed to the Gustafson sphere would not have realized that Gustafson' shell pieces could be given a third dimension without interfering with their ability to rotate in sets around three mutually perpendicular axes. (App. A, p. A-44, 45)

[5] This is particularly true with respect to ascertaining the differences between the claims and the prior art, a fact finding mandated by this Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1965).

at issue, the specification and the prosecution history. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 867 (Fed. Cir. 1985). Such statements may be used to determine the scope of the claims for the purposes of distinguishing them from the prior art, *Id.*, for literal infringement, *Id.* at 869, and for infringement under the doctrine of equivalents, *Id.* at 870.

The district court failed to consider the Citation of Prior Art, (App. A, p. A-64) which is part of the prosecution history. The Court of Appeals here specifically held that the statements in the Citation, although filed after issuance of the patent, may be considered, with their weight to be determined by the circumstances of the case (App. A, p. A-16), but then proceeded on its own summarily to ignore them.

This Court has held that:

> When an appellate court discerns that a district court has failed to make a finding because of an erroneous view of the law, the usual rule is that there should be a remand for further proceedings to permit the trial court to make the missing findings:
>
> "(F)act finding is the basic responsibility of district courts, rather than appellate courts, and ... the Court of Appeals should not have resolved in the first instance this factual dispute which has not been considered by the District Court." *DeMarco v. United States*, 415 U.S. 449, 450, n.
>
> *Pullman-Standard v. Swint*, 456 U.S. 273, 291 (1982)

In *Pullman-Standard*, this Court found that the Court of Appeals had erred in failing to remand after holding that the district court had failed to consider relevant evidence. The Court of Appeals here impermissibly determined the weight to be given the Citation, a piece of evidence which the district court failed to consider, and should have remanded to the district court for findings of fact on the Citation. It is the provence of the district court, not the Court of Appeals, to make the appropriate findings as to the meaning and weight of the evidence.

In the present case, the statements made in the Citation are directly relevant to the proper interpretation of the scope of Claims 3-5 and 9 in defining what the Nichols claims may *not* include (App. A, p. A-64). Such statements, knowingly made by Moleculon on the day before bringing an action for infringement, constitute a strong admission against interest at a time when the importance of such statements was well known to the maker. Indeed, if the district court finds that these admissions against interest are binding, then the determination of infringement will be reversed.

The writ should be granted because the Court of Appeals impermissibly made its own findings on the meaning and evidentiary weight of the Citation after the failure of the district court to consider it. The Court of Appeals should have remanded to the district court to make these findings in construing the claims, both for the purpose of distinguishing the claims under §103 from Gustafson and for the purpose of determining either literal infringement or infringement under the Doctrine of Equivalents. The Court of Appeals's procedure in finding its own facts on evidence which the district court failed to consider is in direct conflict with this Court's mandate, and this Court should exercise its power of supervision to ensure proper appellate review of decisions in accordance with Rule 52(a) of the Federal Rules of Civil Procedure so that facts are found by the tribunal charged with the task of fact finding in the first instance.

Conclusion

For the reasons stated above, the Court should grant certiorari.

Respectfully submitted,

/s/ _____

LEWIS H. ESLINGER
WILLIAM E. PELTON
600 Third Avenue
New York, New York 10016

Attorneys for Petitioner

September 29, 1986

Of Counsel:
ABIGAIL F. COUSINS
ESLINGER & PELTON, P.C.
600 Third Avenue
New York, New York 10016

APPENDIX

United States Court of Appeals
For the Federal Circuit

MOLECULON RESEARCH CORPORATION,

Appellee,

-v.-

CBS, INC.,

Appellant.

Appeal No. 85-2096.

DECIDED: May 16, 1986

Before BALDWIN, NIES, and BISSELL, *Circuit Judges.*

BALDWIN, *Circuit Judge.*

This is an appeal from the judgment of the United States District Court for the District of Delaware, reported at 594 F. Supp. 1420, holding claims 3-5 and 9 of Moleculon Research Corporation's U.S. Patent No. 3,655,201 ('201 patent) valid and infringed by certain of the well-known Rubik's Cube puzzles. We affirm in part, vacate in part, and remand.

Background

Moleculon, as assignee of the '201 patent which issued to Larry D. Nichols, sued CBS Inc., as successor to the Ideal Toy Corporation, alleging infringement of claims 3, 4, 5, 6, and 9 of the '201 patent.

Nichols and the '201 patent

A puzzle enthusiast since childhood, Nichols, in the summer of 1957, conceived of a three-dimensional puzzle capable of

rotational movement. He envisioned an assembly of eight cubes attached in a 2x2x2 arrangement, with each of the six faces of the composite cube distinguished by a different color and the individual cubes being capable of rotation in sets of four around one of three mutually perpendicular axes.

During the period 1957-1962, while doing graduate work in organic chemistry, Nichols constructed several paper models of his puzzle, making cubes of heavy file-card type paper and affixing small magnets to the inside of the cubes. Although these models confirmed the feasibility of Nichols' conception, they lacked durability. A few close friends, including two roommates and a colleague in the chemistry department, had occasion to see one of these paper models in Nichols' room and Nichols explained its operation to at least one of them.

In 1962, Nichols accepted employment as a research scientist at Moleculon. In 1968, Nichols constructed a working wood block prototype of his puzzle which he usually kept at home but on occasion brought into his office. In January 1969, Dr. Obermayer, the president of Moleculon, entered Nichols' office and happened to see the model sitting on his desk. Obermayer expressed immediate interest in the puzzle and Nichols explained its workings. Obermayer asked whether Nichols intended to commercialize the puzzle. When Nichols said no, Obermayer suggested that Moleculon try to do so. In March 1969, Nichols assigned all his rights in the puzzle invention to Moleculon in return for a share of any proceeds of commercialization. On March 7, 1969, Moleculon sent Parker Brothers an actual model and a description of the cube puzzle. In the next three years, Moleculon contacted between fifty and sixty toy and game manufacturers, including Ideal. Ideal responded to the effect that it did not currently have an interest in marketing the puzzle. Moleculon itself did not succeed in marketing the Nichols cube.

On March 3, 1970, Nichols filed on behalf of Moleculon a patent application covering his invention. The '201 patent issued on April 11, 1972.

The subject matter of the '201 patent, in its preferred embodiment, is a cube puzzle composed of eight smaller cubelets that may be rotated in groups of four adjacent cubes, and a method by which the sets of cubes may be rotated, first to randomize, and then to restore a predetermined pattern on the six faces of the composite cube.

Claims 3, 4, and 5 are as follows:[1]

> 3. A method for restoring a preselected pattern from sets of pieces which pieces have constantly exposed and constantly nonexposed surfaces, the exposed surfaces adapted to be combined to form the preselected pattern, which sets when in random engagement fail to display said preselected pattern which comprises:
>
> a. engaging eight cube pieces as a composite cube;
>
> b. rotating a first set of cube pieces comprising four cubes about a first axis;
>
> c. rotating a second set of four cubes about a second axis; and
>
> d. repeating steps (b) and (c) until the preselected pattern is achieved.
>
> 4. The method of claim 3 which includes rotating sets of cubes about one of three mutually perpendicular axes, with reference to the composite structure.
>
> 5. The method of claim 3 wherein the sets of cubes are rotated through multiples of 90°.

Claim 9 is the only apparatus claim remaining in the suit:[2]

---

[1] Claims 1 and 2 were disclaimed while the case was pending before district court and are not at issue here.

[2] Claim 6 was held invalid by the district court. Moleculon has not appealed that determination.

9. A puzzle comprising eight cubes, visually distinguishable indicia on three faces only of each cubes [sic] with the eight cubes together having six visually distinct indicia,

means associated with each of the remaining faces only of each of the cubes releasably maintaining the cubes in assembled relationship forming a composite cube, said maintaining means enabling three interaffiliated groups of four contiguous cubes each to be rotated respectively about three mutually perpendicular axes, the six distinct indicia being so located on the respective cubes that the cube groups can be rotated to effect the display of a distinct indicia on each of the six faces of the composite cube.

Shown below are Figs. 1 and 2b of the patent:

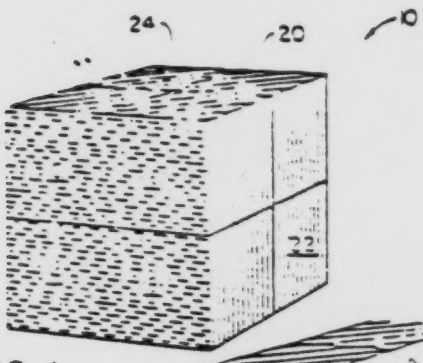


FIG. 1

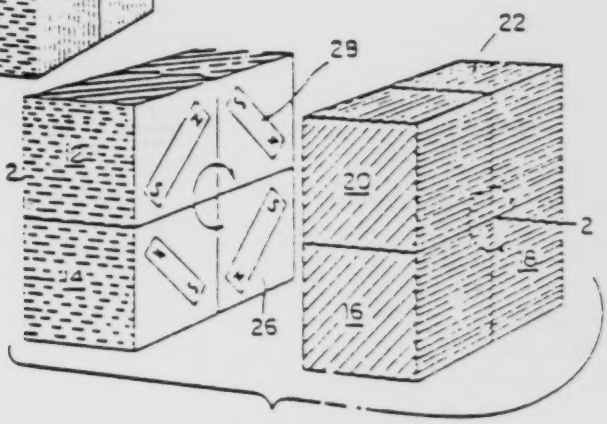
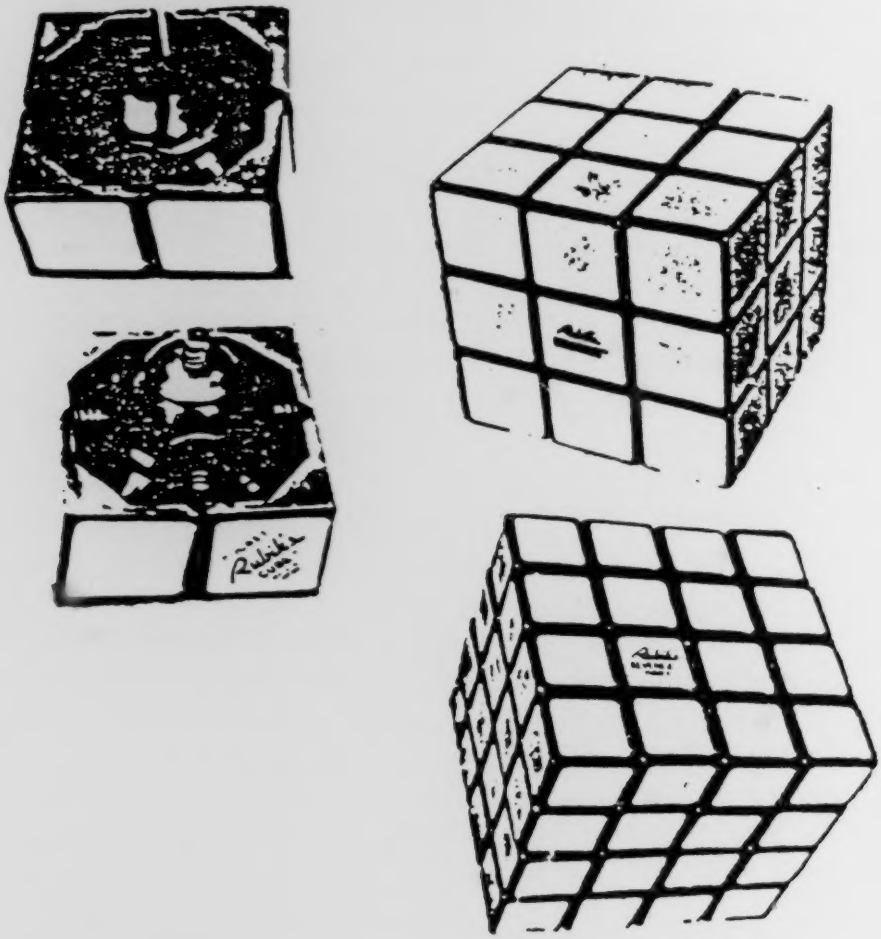


FIG. 2b

The Rubik's Cube and Variations

The accused products are the well-known 3x3x3 Rubik's Cube puzzle, two 2x2x2 variations – a Japanese-made Pocket Rubik's Cube and a Taiwanese-made Pocket Rubik's Cube (pocket cubes), and a 4x4x4 Rubik's Revenge. As shown below, these puzzles externally appear as composite cubes composed of smaller cubes or cubelets (27 for the 3x3x3, 8 for the 2x2x2, and 65 for the 4x4x4):



Internal inspection reveals that the composite cube is not composed of true six-sided cubelets but rather is composed of an internal mechanism holding together cubelet shells which have one or more external faces and permitting sets of cubelets to be rotated about an axis.

Issues

Whether the district court erred in (1) holding that the claimed invention was not in public use nor on sale within the meaning of 35 U.S.C. § 102(b); (2) holding claims 3-5 not invalid for lack of utility and enablement under 35 U.S.C. §§ 101, 112; (3) holding claims 3-5 and 9 nonobvious under 35 U.S.C. § 103; and (4) finding infringement of claim 9 and induced infringement of claims 3, 4, and 5.

OPINION

1. *§ 102(b) on sale and public use bars*

CBS argues that the subject matter of the '201 patent was in "public use" and "on sale" by Nichols, prior to the March 3, 1969 critical date (i.e., one year prior to filing of the patent application), thus rendering the patent invalid under section 102(b).

(a) *Public Use*

CBS labels as public use Nichols' displaying of the models to other persons (such as his colleagues at school) without any mention of secrecy. CBS ascribes only commercial purpose and intent to Obermeyer's use of the wood model and argues that a conclusion of barring public use under § 102(b) is compelled. We disagree.

This is what the district court had to say:

> The essence of "public use" is the free and unrestricted giving over of an invention to a member of the public or the public in general. What I see here, by contrast, is the inventor's private use of his own invention for his own enjoyment. "Private use of one's own invention is permissible." . . .
>
> While it is true that Nichols explained his puzzle to a few close colleagues who inquired about it and allowed

> Obermayer to in fact use it, the personal relationships and other surrounding circumstances were such that Nichols at all times retained control over its use as well as over the distribution of information concerning it. He never used the puzzle or permitted it used in a place or at a time when he did not have a legitimate expectation of privacy and of confidentiality. In these respects, I consider the exposure to Obermayer in Nichols' office no different than the exposure of Nichols' close friends in his home.
>
> . . . Here also the relationship between the participants in the alleged uses evidences a retention of control by Nichols. None of those participants had any basis for inferring that the puzzle was being given over by Nichols for their free and unrestricted use. Holding the public use bar inapplicable in these circumstances will not remove anything from the public domain. Moreover, there is absolutely no evidence in this case of commercially motivated activity by Nichols during the relevant period. Accordingly, the underlying policy against extending the effective term of exclusivity is not offended by a finding that the Nichols invention was not in public use.

544 F. Supp. at 1427 (citations omitted).

CBS correctly recognizes that the district court's conclusion on public use under § 102(b) is subject to review as a question of law while the facts underlying the conclusion on public use are subject to the clearly erroneous standard of review. *Hycor Corp.* v. *Schlueter Co.*, 740 F.2d 1529, 1537, 222 USPQ 553, 559 (Fed. Cir. 1984).

CBS urges that the decision in *Egbert* v. *Lippmann*, 104 U.S. 333 (1881), compels a conclusion of public use in the present case. In *Egbert*, the claimed invention was drawn to improved corset-springs, also called corset-steels. In 1855, the inventor made and presented to his lady friend a pair of corset-steels which embodied

the invention. She wore the steels for a long time. The inventor made and gave her another pair three years later which she also wore a long time. On several occasions, when the corset itself wore out, the steels were removed and placed into a new corset. In 1866, an application for patent was filed. It was on those facts that the Court observed that: "If an inventor, having made his device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, even though the use and knowledge of the use may be confined to one person." *Id.* at 336.

The district court distinguished *Egbert* because here Nichols had not given over the invention for free and unrestricted use by another person. Based on the personal relationships and surrounding circumstances, the court found that Nichols at all times retained control over the puzzle's use and the distribution of information concerning it. The court characterized Nichols' use as private and for his own enjoyment. We see neither legal error in the analysis nor clear error in the findings.

As for Obermayer's brief use of the puzzle, the court found that Nichols retained control even though he and Obermayer had not entered into any express confidentiality agreement. The court held, and we agree, that the presence or absence of such an agreement is not determinative of the public use issue. *See TP Laboratories, Inc.* v. *Professional Positioners, Inc.*, 724 F.2d 965, 972, 220 USPQ 577, 583, (Fed. Cir.), *cert. denied*, 105 S.Ct. 108 (1984). It is one factor to be considered in assessing all the evidence. There can be no question that the court looked at the totality of evidence, *see id.* at 971, 220 USPQ at 582; *Hycor Corp.* v. *Schlueter Co.*, 740 F.2d at 1535, 222 USPQ at 557, and evaluated that evidence in view of time, place, and circumstances.

With regard to the question of control, CBS complains that "[t]he record is devoid of any testimony from the friends, associates and fellow workers who saw Nichols cube and to whom its operation was explained." The simple answer is that CBS had the burden at trial to prove public use with facts supported by clear and convincing evidence. *Hycor Corp.* v. *Schlueter Co.*, 740 F.2d at 1536-37, 222 USPQ at 558-59. We think the district court's

characterization of the evidence of record is entirely apt and we see no ground for reversal. Moreover, we agree with the district court that its conclusion on public use is consistent with the policies underlying the bar. *See TP Laboratories*, 724 F.2d at 968, 220 USPQ at 580.

CBS further argues in connection with public use that the district court erred when it found no evidence of commercially motivated activity by Nichols prior to the critical date.[3] Although CBS attempts to paint a picture of commercialization from the discussions between Obermayer and Nichols, we see only the brush strokes of speculation. The record lacks hard evidence. Discussion between employer and employee does not by itself convert an employee's private pursuit into commercial enterprise with the employer. CBS also makes much of a February 6, 1969 phone call by Obermayer to Parker Brothers to see if the latter was interested in receiving a submission of a puzzle idea from an outside inventor. Nothing concerning the nature or workings of Nichols' puzzle was disclosed. Obermayer simply inquired whether and how an outsider could submit a puzzle for Parker Brothers' consideration. We agree with the district court that those facts do not show commercialization. Thus this case differs from other cases where commercial activity was said to violate the policies of section 102(b). *See Kinzenbaw* v. *Deere & Co.*, 741 F.2d 383, 222 USPQ 929 (Fed. Cir. 1984), *cert. denied*, 105 S.Ct. 1357 (1985); *D.L. Auld Co.* v. *Chroma Graphics Corp.*, 714 F.2d 1144, 219 USPQ 13 (Fed. Cir. 1983); *In re Smith*, 714 F.2d 1127, 218 USPQ 976 (Fed. Cir. 1983).

(b) *On Sale*

CBS argues that the claimed invention was on sale within the meaning of 35 U.S.C. § 102(b) because Nichols orally agreed prior to the critical date (e.g., during a January 1969 conversation between Nichols and Obermayer) to assign "all his rights in the puzzle invention" to Moleculon. According to CBS, Nichols not only

[3] In some instances, commercially motivated activities may implicate both the public use and the on sale bars.

assigned the right to apply for a patent on the invention but also conveyed title in his single wooden model.

Although the formal written assignment occurred after the critical date, the district court held that even if there were an earlier oral agreement, an assignment or sale of the rights in the invention and potential patent rights is not a sale of "the invention" within the meaning of section 102(b). We agree. The few cases we have found on this issue have uniformly held that such a sale of patent rights does not come within the section 102(b) bar. *United States Electric Light Co.* v. *Consolidated Electric Light Co.*, 33 F. 869, 870-71 (S.D.N.Y. 1888); *Scott Paper Co.* v. *Moore Business Forms, Inc.*, 594 F.Supp. 1051, 1075 (D. Del. 1984); *see also Federal Sign & Signal Corp.* v. *Bangor Punta Operations, Inc.*, 357 F.Supp. 1222, 1237 (S.D.N.Y. 1973). Such a result comports with the policies underlying the on sale bar, *see Western Marine Electronics, Inc.* v. *Furuno Electric Co.*, 764 F.2d 840, 845, 226 USPQ 334, 337 (Fed. Cir. 1985), and with the business realities ordinarily surrounding a corporation's prosecution of patent applications for inventors, *see Sun Studs, Inc.* v. *Applied Theory Associates, Inc.*, 772 F.2d 1557, 1568, 227 USPQ 81, 89 (Fed. Cir. 1985).

As for CBS' contention that Nichols sold or agreed to sell the wood model of the puzzle, we quote the district court's relevant findings:

> There is no indication in the subsequent written instrument that the parties contemplated the sale or transfer to Moleculon of the single physical embodiment of the puzzle then in existence. Nor is there any other evidence in the record to that effect.

CBS has shown nothing approaching clear error concerning those findings.

Accordingly, we sustain the district court's determination that the claims are not invalid under section 102(b).

2. *Non-obviousness*

CBS argues that the district court erred in holding the subject matter of claims 3-5 and 9 nonobvious under 35 U.S.C. § 103 in light of U.S. Patent No. 3,081,089 issued to Gustafson on March 12, 1963 (Gustafson patent). The parties and the district court agree that the Gustafson patent is the most pertinent prior art. It teaches a "mechanical puzzle having a plurality of varicolored parts which are movable relative to each other to form various patterns." The district court added:

> The puzzle consists basically of a spherical outer shell that rides on a substantially concentric spherical inner core. The outer shell is divided into eight equal parts which are held to the core by tongues that fit into and slide along a series of grooves cut into the core. Groups of four contiguous pieces, viz., hemispheres, may be rotated relative to one another around any of three mutually perpendicular axes.

The court reviewed other references cited by CBS, determined the level of ordinary skill in the art of puzzle design, and thoroughly analyzed the differences between the prior art and the claimed subject matter. CBS does not contest any of the underlying findings but directs its attack on the court's ultimate conclusion of nonobviousness.

As a premise to its argument, CBS says the district court "conceded" that making the puzzle in a cubical embodiment would have been obvious in light of Gustafson's teaching of a spherical design. CBS then asserts that the court improperly relied on unexpected advantages or superiority of the cubical design to overcome obviousness. The premise and argument are flawed. What the court said was that while it would have been obvious to *consider* changing Gustafson's sphere into a cube or other geometric shape, one of ordinary skill in the art would not have recognized the desirability of a subdivided cube capable of tri-axial rotation. The court relied on expert testimony to the effect that Nichols' concept was a breakthrough and represented "a quantum leap from a sphere." The court noted in addition that Gustafson himself

considered other solids which would offer more complexity than the sphere and in his search "dismissed the cube as offering only six faces and went on to work with such larger platonic solids as the octahedron, tetradecahedron, and icosahedron" none of which proved satisfactory.

CBS also argues, citing *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed. Cir. 1985), that method claims 3 through 5 are invalid because they apply an old method (Gustafson) to an obvious object (a cube). It is well worth repeating what we said in *Durden:* "What we or our predecessors may have said in discussing different fact situations is not to be taken as having universal application." 763 F.2d at 1410, 226 USPQ at 361. The issue in *Durden* was "whether a chemical process, otherwise obvious, is patentable *because* either or both the specific starting material employed and the product obtained are novel and unobvious" and that issue was resolved only as a factual matter. Here, the trial court found after reviewing all the evidence of record that nothing in the prior art suggested the combination of a subdivided cube with the rotation of pieces to achieve a preselected pattern. CBS has not shown error in that determination.

In sum, we have considered each of CBS' arguments and the evidence relied upon by the district court, and conclude that CBS has shown neither legal error in the court's determination on nonobviousness nor clear error in the court's probative findings underlying that determination. *Atlas Powder Co.* v. *E.I. DuPont De Nemours & Co.*, 750 F.2d 1569, 1573, 224 USPQ 409, 411 (Fed. Cir. 1984).

3. *Enablement and Utility*

CBS raises related issues of utility under 35 U.S.C. § 101 and enablement under 35 U.S.C. § 112. We review utility as a question of fact and enablement as a question of law. *Raytheon Co.* v. *Roper Corp.*, 724 F.2d 951, 956, 960 n.6, 220 USPQ 592, 596, 599 n.6 (Fed. Cir. 1983), *cert. denied*, 105 S.Ct. 127 (1984); *Cross v. Iizuka*, 753 F.2d 1040, 1044 n.7, 224 USPQ 739, 742 n.7 (Fed. Cir. 1985).

CBS contends that the district court erred in refusing to hold claims 3 through 5 invalid because what the claims define "does not

work – a cube puzzle randomized by rotation about three axes cannot be solved by rotation about just one or two axes." CBS' allegation of inoperativeness relies on a "plain" reading of the claims, i.e., that claim 3 defines a method involving rotation about only *two* axes (step (b)'s "rotating a first set of cube pieces . . . about *a first asix*", step (c)'s "rotating a second set . . . about *a second axis*", and step (d)'s "repeating steps (b) and (c) until the preselected pattern is achieved"); that dependent claim 4 defines rotation about only "one" of three axes; and that dependent claim 5 defines rotation in "multiples of 90°." CBS' argument effectively rests on whether the district court erred in construing the claims. Thus, we must first determine whether the district court erred in interpreting claim 3 as not limited to rotation about only two axes. The court said:

> It is plain from the specifications of the '201 patent that the user is to rotate sets of cube pieces about three axes in order to solve the puzzle. Not only are three axes an inherent feature of the 2x2x2 cube described in the specifications, but there are explicit references to these three axes or the three corresponding coordinate planes in every part of the patent, from the abstract to the drawings. . . .
>
> Claim 3 clearly can be read to contemplate rotation about three axes. By using the indefinite article "a" (i.e. "a first axis," "a second axis"), it is left open to the user, when he comes to the third step, and is directed to repeat the first two steps, to go back to the first axis, or alternatively to select another axis instead, depending upon his solution strategy. This seems to be a reasonable interpretation of the words of the claim, and is clearly consonant with the implications of the rest of the patent and the intent of the patentee.

594 F.Supp. at 1430 (footnote omitted).

The reasoning is sound. This is not a case of a trial court improperly "reading" a limitation found in the specification into the claim. Rather, the trial court correctly ascertained the true

meaning of the claim by interpreting the claim language (e.g., "a first axis," "a second axis") in light of the specification and the patent as a whole.[4] *Loctite Corp.* v. *Ultraseal Ltd.*, 781 F.2d 861, 867, 228 USPQ 90, 93 (Fed. Cir. 1986); *Fromson* v. *Advance Offset Plate, Inc.*, 720 F.2d 1565, 1569-70, 219 USPQ 1137, 1140 (Fed. Cir. 1983). Accordingly, the inoperativeness argument must fail.

CBS also argues that the subject matter of the claims are not "useful" because the claims do not "teach" anyone the complicated method of solving Nichols' or Rubik's puzzle. The argument misperceives the purpose of a claim. The claims are directed to "a method for restoring a preselected pattern." They claim a general *approach* for solving the puzzle. As the district court correctly observed, neither the claims nor the disclosure need set forth *a particular* series of moves to solve the puzzle. Not only do the series of moves for restoring depend on how the preselected pattern was randomized, but there may be more than just one sequence of steps that will restore the preselected pattern. Manifestly, CBS did not come close to meeting the burden of a non-utility defense by proving total incapacity with facts supported by clear and convincing evidence. *See Envirotech Corp.* v. *Al George, Inc.*, 730 F.2d 753, 762, 221 USPQ 473, 480 (Fed. Cir. 1984). Nor has CBS shown that the claims fail for lack of an enabling disclosure, i.e., one that enables a person of ordinary skill in the art to use the claimed methods. *See Atlas Powder Co.* v. *E.I. DuPont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984).

4. *Infringement*

Literal infringement, i.e., whether properly interpreted claims read on the accused product or method, is a question of fact and reviewable under a "clearly erroneous" standard. *ACS Hospital Systems, Inc.* v. *Montefiore Hospital*, 732 F.2d 1572, 1582, 221

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[4] CBS argues that because claim 1 (disclaimed by Moleculon, *see* note 1 supra) expressly claims rotation about three axes, claim 3 must therefore be more "broadly" claiming rotation about two axes only. The language of dependent claims 4 and 5 are said to support this argument. The district court reviewed the entire patent and concluded otherwise. In our view, the district court's interpretation of the claims is the more reasonable one.

USPQ 929, 936 (Fed. Cir. 1984). Claim interpretation, a threshold inquiry when resolving infringement, is a question of law. *Loctite Corp.* v. *Ultraseal Ltd.*, 781 F.2d 861, 866, 228 USPQ 90, 93 (Fed. Cir. 1986).

First, CBS argues that this court should determine the issue of infringement *de novo* because Moleculon's only witness to testify in regard to the claims disclaimed any expertise in interpreting claims and because Moleculon represented that its experts were not offered for the purpose of applying the claims to the Rubik puzzles. The argument borders on the frivolous. We have never *required* a party to proffer expert testimony on claim interpretation or on application of claim language to accused devices.

Next, CBS faults the district court for not mentioning in its opinion a Citation of Prior Art filed by Moleculon in the U.S. Patent and Trademark Office (PTO). Filed pursuant to 35 U.S.C. § 301[5] one day before Moleculon filed the present suit, the Citation identified the Gustafson patent and distinguished it from the claimed invention. CBS urges that those statements distinguishing Gustafson from the claimed invention also distinguish the Rubik puzzles from the claims in suit. Moleculon answers that the district court did not refer to the Citation because CBS did not argue it to the trial court. In any event, says Moleculon, the statements in the Citation have no limiting effect on the scope of the claims because prosecution history estoppel "has absolutely no application to the facts here" since the statements were not made in order to obtain issuance of claims, nor to amend claims, nor submitted as part of a reexamination proceeding.

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[5] The section provides:

> Any person at any time may cite to the Office in writing prior art consisting of patents or printed publications which that person believes to have a bearing on the patentability of any claim of a particular patent. If the person explains in writing the pertinency and manner of applying such prior art to at least one claim of the patent, the citation of such prior art and the explanation thereof will become a part of the official file of the patent. At the written request of the person citing the prior art, his or her identity will be excluded from the patent file and kept confidential.

Moleculon's contention that prosecution history estoppel has no application in this case does not solve the problem. While it is true that the effect of prosecution history arises as an estoppel when applying infringement analysis under the doctrine of equivalents, *Loctite Corp.* v. *Ultraseal Ltd.*, 781 F.2d at 870, 228 USPQ at 96, the prosecution history can and should, where relevant, be assessed (along with, e.g., claim language and specification) in properly interpreting claim language. *Id.* at 867, 228 USPQ at 93; *Lemelson* v. *United States*, 752 F.2d 1538, 1550, 224 USPQ 526, 532-33) (Fed. Cir. 1985). Thus the question is whether a Citation of Prior Art made by the patentee under section 301 may be considered by the court in interpreting claim language.

The statute plainly says: "[T]he citation of such prior art and the explanation thereof will become a part of the official file of the patent." A citation may be made at "any time" either during prosecution or, as here, after the patent has issued. If made during prosecution, it is clear that the statements may be considered for claim interpretation purposes, just as any other document submitted during prosecution. If submitted after issuance, the answer, again, is it may be considered. To say that it *may* be considered is not to say what *weight* statements in the Citation are to be accorded. For example, a Citation filed during litigation might very well contain merely self-serving statements which likely would be accorded no more weight than testimony of an interested witness or argument of counsel. Issues of evidentiary weight are resolved on the circumstances of each case.

Having considered the statements appearing in Moleculon's Citation, we conclude that they give no additional light to our task of interpreting claims 3-5 and 9 and therefore they will be ignored.

Method Claims 3-5

The district court, in construing method claims 3, 4, and 5 said (emphasis added):

> Claim 3, and its dependent claims, 4 and 5, read on the 2x2x2 form of the puzzle, *as well as on such larger cubic embodiments as the 3x3x3 and the 4x4x4, because*

> *it employs the open transitional phrase "which comprises."* The term "comprising" denotes a patent claim as being "open," meaning that the recitation of structure in the claim is open to additional structural elements not explicitly mentioned.

CBS argues that claim 3 is limited to a method for solving a composite cube of eight cube pieces, i.e., a 2x2x2 puzzle.

Neither party challenges the general proposition that an accused method does not avoid literally infringing a method claim having the transitional phrase "which comprises" (or "comprising") simply because it employs *additional* steps. *See A.B. Dick Co.* v. *Burroughs Corp.*, 713 F.2d 700, 703, 218 USPQ 965, 967 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1042 (1984). CBS contends, however, that infringement is avoided when a method claim's step is "missing" from the accused method. *E.g., Amstar Corp.* v. *Envirotech Corp.* 730 F.2d 1476 (Fed. Cir.), *cert. denied*, 105 S.Ct. 306 (1984). But here the step is "missing" only in the sense that it is different. CBS says that in solving the 3x3x3 Rubik's Cube or the 4x4x4 Rubik's Revenge there is no step of "engaging *eight cube pieces* as a composite cube" as found in claim 3. Moleculon counters that using the transitional phrase "which comprises" not only opens the claim to additional steps, but also opens the claim and its individual method steps to additional structural elements.[6] Moleculon's statement is far too broad, as an examination of step (a) of claim 3 shows.[7] That step ("engaging eight cube pieces as a composite cube") contains a structural recitation ("eight cube pieces"). The question before us is *not* whether, because of the transitional phrase "which comprises," the step reads on a step of an accused method which recites additional structure (hypothetically, "eight cube pieces and six metal plates"), but rather whether this step which

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[6] Moleculon cites *In re Baxter*, 656 F.2d 679, 210 USPQ 795 (CCPA 1981), and *Swain* v. *Mallory*, 329 F.2d 982, 141 USPQ 209 (CCPA 1964), in support. However, these cases merely support the general proposition that a claim employing the transitional term "comprising" does not exclude additional, unrecited elements (i.e., steps in a method claim).

[7] Since claims 4 and 5 are dependent upon claim 3, our analysis of claim 3 will be illustrative of the three.

recites engaging "eight cube pieces as a composite cube" reads on a step which engages more than eight cube pieces as in the 3x3x3 Rubik's Cube or the 4x4x4 Rubik's Revenge.

The transitional phrase, which joins the preamble of a claim with the body of a claim, is a term of art and as such affects the legal scope of a claim. While a transitional term such as "comprising" or, as in the present case, "which comprises," does not exclude additional unrecited elements, or steps (in the case of a method claim), we conclude that the transitional phrase does not, in the present case, affect the scope of the particular structure recited within the method claim's step.

We note decisions where structural recitation in a method claim step was construed as a limitation on the claim. *See Austin Powder Co.* v. *Atlas Powder Co.*, 568 F.Supp. 1294, 1316 (D. Del. 1983); *Laminex, Inc.* v. *Fritz*, 389 F.Supp. 369, 373-74 (N.D. Ill. 1974). Whether structural recitation limits a claim depends on the language of the claim, the specification, prosecution history, and other claims. The district court erred, therefore, in using the transitional phrase "which comprises" to expand the scope of the recited "eight cube pieces."

Based on our review of the patent, we hold that claim 3 is limited, at least for purposes of literal infringement, to a method for restoring a 2x2x2 composite cube. That interpretation follows not only from the language of step (a), but also from the way the eight cube piece composite cube is manipulated in steps (b), (c), and (d). These steps are limited to manipulating sets of four cubes only.[8]

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[8] During the oral argument, Moleculon argued that the word "comprising" in step (b) ("rotating a first set of cube pieces comprising four cubes about a first axis") means that the step covers four cubes *or more*. "Comprising" is not used here as a transitional phrase and has no special legal effect as such. Hence, it should be interpreted according to the normal rules of claim interpretation. No analogous word precedes the structural recitation of the number of cube pieces in steps (a) and (c). "Comprising" in step (c) reasonably interpreted means "having" but not "having at least."

The district court's erroneous interpretation of claims 3-5 renders clearly erroneous its finding that the method of solving the 3x3x3 Rubik's Cube and 4x4x4 Rubik's Revenge literally infringe those claims. Accordingly, we vacate the finding. The district court made no finding on whether solving the 3x3x3 Rubik's Cube or the 4x4x4 Rubik's Revenge would infringe claims 3-5 under the doctrine of equivalents. The question there is whether the methods for restoring the Rubik's puzzles with their structural differences and the claimed invention perform substantially the same function in substantially the same way to give substantially the same result. *Atlas Powder Co.* v. *E.I. DuPont de Nemours & Co.*, 750 F.2d 1569, 1579, 224 USPQ 409, 416 (Fed. Cir. 1984). On remand the court should address this question. *See Loctite Corp.* v. *Ultraseal Ltd.*, 781 F.2d 861, 869-70, 228 USPQ 90, 95-96 (Fed. Cir. 1986).

CBS appears to argue, as it did below, that even its 2x2x2 pocket cubes do not literally infringe the method claims because the pocket cubes are not composite cubes consisting of "eight cube pieces" but instead are partial cubes whose internal faces are cut away to accommodate an internal engaging mechanism. We reject the argument. The Nichols patent as a whole shows that the word "cube" is not limited to geometrically true cubes but refers to the cubelet shape as perceived by the puzzle user.

One more issue remains. Method claims 3-5 can be infringed only by a puzzle user. Thus, Moleculon's claim is one for inducing infringement under 35 U.S.C. § 271(b).[9] CBS argues that it cannot be liable for inducing infringement of claims 3-5 because there is no evidence of direct infringement of the method claims. The district court held that Moleculon had met its burden of showing infringement under section 271(b) with circumstantial evidence of extensive puzzle sales, dissemination of an instruction sheet teaching the method of restoring the preselected pattern with each puzzle, and the availability of a solution booklet on how to solve the puzzle.

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[9] 35 U.S.C. § 271(b) provides: "Whoever actively induces infringement of a patent shall be liable as an infringer." The parties and the district court on occasion use the term "contributory infringement." So as not to confuse the case here, which concerns inducing infringement, with "contributory" infringement under § 271(c), we will consistently use the language of § 271(b).

If CBS is arguing that proof of inducing infringement or direct infringement requires *direct*, as opposed to *circumstantial evidence*, we must disagree. It is hornbook law that direct evidence of a fact is not necessary. "Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence." *Michalie* v. *Cleveland Tankers, Inc.*, 364 U.S. 325, 330 (1960). We see no clear error in the court's finding of infringement under section 271(b) with regard to the 2x2x2 pocket cube versions.

Claim 9

Moleculon acknowledged during trial and the district court held that claim 9 was limited to a 2x2x2 puzzle form. The question presented to the court was whether Rubik's 2x2x2 pocket cubes infringed the claim. The district court found that each of the pocket cubes literally infringed claim 9. Of the three claim interpretation arguments presented to and rejected by the lower court, only one is raised on appeal – namely, that neither of Rubik's pocket cubes infringes claim 9 because the pocket cubes' pieces are not "releasably" maintained in a composite cube. According to CBS, "releasably" maintained means capable of disengagement or separation during normal puzzle manipulation, as would be possible for Nichols' embodiment using magnets to hold the cubelets together.

The district court determined that "in the context of the patent as a whole, it is far more reasonable to read the phrase 'releasably maintaining' as referring to a means of holding the puzzle pieces in assembled relationship while permitting relative rotation of groups of pieces." We agree. As noted by the court, the '201 patent's specification states that "the invention includes such devices wherein the engagement is provided by mechanical or magnetic means providing structural integrity without restriction of rotational freedom . . . " Further, in the patent's "Description of Preferred Embodiment" it is pointed out that while disengagement is an inherent feature of magnetically-engaged cubes "it is also possible to achieve engagement by mechanical rather than magnetic means, as for example by using a pop-in snap linkage, or

a tongue-in-groove arrangement allowing rotation without disengagement."

We see no error in the court's claim interpretation. Accordingly, we affirm the finding of infringement as to claim 9.

5. *Conclusion*

Those parts of the district court's judgment holding that the claimed invention was not in public use or on sale, that claims 3-5 are not invalid for lack of utility or enablement, and that claims 3-5 and 9 are not invalid for obviousness, are *affirmed.*

That part of the judgment holding the '201 patent infringed by the 3x3x3 Rubik's Cube and 4x4x4 Rubik's Revenge is *vacated and remanded* for proceedings consistent with this opinion.

That part of the judgment holding claims 3-5 and 9 infringed by the 2x2x2 Rubik's pocket cubes is affirmed,

AFFIRMED IN PART, VACATED IN PART, AND REMANDED

ORDER DATED OCTOBER 2, 1984

United States District Court
D. Delaware.

MOLECULON RESEARCH CORPORATION,

Plaintiff,

v.

CBS, INC.

Defendant.

Civ. A. No. 82-289-WKS.

An action was filed for patent infringement by the assignee of the inventor of a cube puzzle. The District Court, Stapleton, Chief Judge, held that: (1) patent No. 3,655,201 was not invalid on the basis of "public use" or being "on sale" more than one year prior to the patent application; (2) claims 3, 4 and 5 of the patent involving methods for solving the puzzle were not invalid for lack of utility; (3) claim 6 of the patent was invalid for obviousness; (4) four other claims were not invalid for obviousness; (5) the nonobvious claims were infringed; and (6) the defendant was liable for contributory infringement of the claims involving the method of solving the puzzle.

Order accordingly.

OPINION

STAPLETON, Chief Judge:

This is an action for patent infringement brought by the plaintiff, Moleculon Research Corporation ("Moleculon"), as assignee of U.S. Letters Patent No. 3,655,201 ("the '201 patent") from Larry D. Nichols, the inventor. Moleculon charges the defendant, CBS, Inc. ("CBS"), as the successor to the Ideal Toy Corporation ("Ideal"), with infringement of Claims 3, 4, 5, 6 and 9 of the '201 patent. The subject of the '201 patent, in its preferred embodiment, is a cube puzzle composed of eight smaller cublets that may be rotated in groups of four adjacent cubes, and a method by which the sets of cubes may be rotated, first to randomize, and then to restore a predetermined pattern on the six faces of the composite cube.

The issues relating to damages and other possible relief were severed and a trial was held on the issues of validity and infringement. This opinion constitutes my findings of fact and conclusions of law with respect to validity and infringement.

I. THE BACKGROUND FACTS

Nichols' interest in puzzles began at the age of five or six. His interest in the familiar "Sam Loyd 15" puzzle[1] evolved into a desire to improve on what he perceived to be its shortcomings. In particular he, considered various ways of eliminating the empty space, while allowing pieces to be moved.

During an evening stroll in the Summer of 1957, these thoughts and ideas suddenly fell into place in Nichols' mind and he conceived of a three-dimensional puzzle capable of rotational movement. Nichols quickly envisioned an assembly of eight cubes

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[1] The Sam Loyd 15 puzzle, invented in 1873, is the familiar square, two dimensional puzzle inset with fifteen flat square numbered tiles and an empty space that could accommodate a sixteenth tile. The tiles can be moved one at a time by sliding them into the empty space.

stacked in a 2x2x2 arrangement, with each of the six faces of the composite cube distinguished by a different color. He recognized that the smaller cubes would be rotated in sets of four around one of three mutually perpendicular axes. He felt immediate satisfaction at having arrived at this concept.

Nichols very quickly realized that magnets could be used to hold the cubes in assembled form yet allow rotational movement. His efforts to conceive of a feasible mechanical means of assembly proved more difficult; however, by the Fall of 1957, Nichols believed that a double tongue-in-groove arrangement could be made to work.

During the period 1957-1968, Nichols constructed several momdels of his puzzle, making cubes of heavy file-card type paper and affixing small magnets to the inside of the small clubes. These models confirmed the feasibility of Nichols' conception, but lacked durability. During this period he also attempted to explore mechanical alternatives, such as engaging the cubes through a tab-and-slot arrangement, but these experiments were not satisfactory.

Nichols spent the years 1959-62 as a graduate student in organic chemistry at Harvard. During this period, a few close friends, including two roommates and a colleague in the Chemistry Department, had occasion to see one of these paper models in Nichols' room and Nichols explained its operation to at least one of them.

In 1962, after completing the requirements for a Ph.D. in organic chemistry, Nichols accepted employment as a research scientist at Moleculon. In 1968, Nichols happened upon some small, strong and relatively inexpensive magnets in a retail store. Realizing that he now had access to machining equipment at work, he undertook to make a wood block prototype of his puzzle. Working after working hours, he drilled holes in the internal faces of eight small wooden blocks, inserted the magnets, properly oriented them, and glued them in. He then painted each of the six faces of the composite cube a different color. To his satisfaction, it held together nicely.

Nichols usually kept the puzzle at home, but on occasion brought it to his office to work on it or to play with it. In early January of 1969, Dr. Obermayer, the president of Moleculon, entered Nichols' office and happened to see the model sitting on his desk. He immediately expressed an interest in the puzzle, and in response, Nichols explained its workings. He asked to take it home and was given permission to do so. Obermayer asked whether Nichols intended to commercialize the puzzle. When Nichols answered in the negative, Obermayer suggested that Moleculon attempt to do so and Nichols expressed general agreement. In March of 1969, Nichols signed a written agreement assigning all his rights in the puzzle invention to Moleculon in return for a share of any proceeds of commercialization. Moleculon in turn assumed all expenses of commercializing the puzzle.

Shortly thereafter Moleculon undertook an extensive effort to commercialize the puzzle. Obermayer called Parker Brothers in February of 1969 to determine whether they had an interest in receiving for consideration puzzle ideas from outside inventors and, if so, how one should go about making a submission. Parker Brothers responded with a letter and booklet describing their general practice regarding puzzle and game submissions and on March 7, 1969, Moleculon sent Parker Brothers an actual model and a description of the cube puzzle. During the subsequent three year period, Moleculon contacted between fifty and sixty toy and game manufacturers. Among those contacted was Ideal. Moleculon sent Ideal only a generalized, non-specific description of the puzzle, and Ideal responded to the effect that it did not currently have an interest in marketing the puzzle. In fact, Moleculon did not succeed in marketing the Nichols cube.

Toward the end of 1969, Nichols began working on a patent application for his puzzle. After several drafts were exchanged between Nichols and his attorney, a patent application was filed on behalf of Moleculon on March 3, 1970. On April 11, 1972, the '201 patent covering Nichols' invention was issued.

In February or March of 1981, Obermayer first became aware of Ideal's Rubik's Cube through items in the press. Shortly thereafter, he purchased a Rubik's cube. Struck by the similarity to

the Nichols' cube, Obermayer wrote to the president of Ideal calling his attention to the '201 patent. Ideal, through its patent attorney, responded that it had studied the prior art and believed that Rubik's Cube did not infringe any valid patent claims. In August 1981, Obermayer met with Ideal's chairman to discuss the possibility of Ideal licensing the '201 patent. At that meeting, Obermayer was given a copy of U.S. Letters Patent No. 3,081,089 issued to Gustafson on March 12, 1963 ("the Gustafson Patent"). When subsequent meetings between counsel for Moleculon and Ideal failed to produce an agreement, this suit was instituted. During the pendency of this litigation, Ideal was acquired by CBS.

It is not claimed that Ideal was aware of or in any way derived its Rubik's Cube from the '201 patent. On the contrary, the Rubik's Cube was first brought to Ideal's attention by an inventor's agent from England. Captivated by the puzzle, Ideal executives concluded a licensing agreement with the Hungarian state agency, Konsumex, and in February 1980, the Rubik's Cube was introduced to the trade at the International Toy Fair in New York City. The Rubik's Cube was patented in Hungary, but was marketed by Ideal in the United States without seeking the benefit of patent protection over the cube puzzle itself. Ideal did, however, obtain trademark protection for the "Rubik" name and certain of the internal mechanisms were patented.

II. THE PRESUMPTION OF VALIDITY

[1] The '201 patent is presumed valid pursuant to 35 U.S.C. § 282. This presumption may be overcome only by evidence which demonstrates invalidity clearly and convincingly. Moreover, the Court of Appeals for the Federal Circuit has recently held that the presumption of validity is neither weakened nor destroyed by pertinent prior art not considered by the Patent and Trademark Office ("PTO"), and that 35 U.S.C. § 282 requires a court to presume that the patent is useful, novel and nonobvious as well as not subject to a statutory bar. *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 220 U.S.P.Q. 97 (Fed. Cir. 1983); *Leinoff v. Louis Milona and Sons, Inc.*, 726 F.2d 734, at 738 (Fed. Cir. 1984)

citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1534, 218 U.S.P.Q. 871 (Fed. Cir. 1983); *TP Laboratories v. Professional Positioners*, 724 F.2d 965 (Fed. Cir. 1984).

III. SECTION 102(b) BARS

The first defense raised by CBS is that the '201 patent is invalid because the Nichols cube puzzle was in public use and on sale more than one year prior to the date of the U.S. patent application. Section 102(b) provides in pertinent part that "[a] person shall be entitled to a patent unless—

> the invention was . . . in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States."

[2] The "public use" and "on sale" bars are two different defenses that must be considered separately; however, a determination of when the Nichols invention was reduced to practice is necessary in either case. The Section 102(b) bars come into play only after the invention has been reduced to practice: "[A]n invention cannot be offered for sale until it is completed, which requires not merely its conception but its reduction to practice." *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, LTD*, 731 F.2d 831, 838 (Fed. Cir. 1984), citing *Timely Products Corp. v. Arron*, 523 F.2d 288, 302 (2d Cir. 1975). This means that the complete invention, as reflected in the patent claims, must have been embodied in, or obvious in light of, the thing whose use or sale is said to come within Section 102(b).

[3,4] Reduction to practice is not, however, to be equated with commercial marketability. In fact, "it is immaterial that the device was a makeshift or 'Rube Goldberg' embodiment" so long as any modifications made along the road to commercial marketability do not involve limitations in the claims. *Barmag, supra* at 838. In light of these principles, I conclude that the early paper-and-magnet models constructed by Nichols while a graduate student at Harvard constituted a reduction to practice. The fact that they lacked durability and were clearly makeshift does not alter the fact that the device was plainly functional for its intended purpose.

[5] Moleculon urges that a reduction to practice occurred only when Nichols constructed his first wooden block-and-magnet model in 1968. That position is clearly inconsistent with the law as enunciated in the *Barmag* case, however, since this change in materials is in no way reflected in the ultimate patent claims. Moleculon adds by way of footnote in its post-trial reply brief that "[e]ven if the Harvard paper models constituted a reduction to practice, they were obviously experimental and cannot form the basis of a public use." [R.B. 5]. However, experimentation in the sense of refinement, occurring after a reduction to practice, does not preclude the applicability of Section 102(b). *In re Smith*, 714 F.2d 1127 (Fed.Cir.1983).

A. "Public Use"

During the years 1959 to 1962, while Nichols was a graduate student at Harvard University, several persons had occasion to see one or more of Nichols' paper models as he was working or playing with them. Two of these persons were roommates of Nichols, another was a colleague in the Chemistry Department, and there may have been "one or two others." Nichols recalls having explained the intended operation of the puzzle to his roommate, Leon Levy, and he testified at trial that he had probably explained it to others "in response to their asking . . . what in the world . . . [he] was doing." All who may have seen the model were intimate friends of Nichols and he would have been "astonished if any of them had felt free to do something with . . . the idea . . . ." (Tr. 897). However, Nichols testified that he relied on their friendship rather than exacting an explicit promise of secrecy.

After Nichols constructed the wooden block puzzle in 1968, he kept it primarily in his home, open to view by house guests. Nichols "made [no] effort to bring it to anyone's attention," but "[i]t was no secret to those who happened to encounter it." Moreover, he did not hesitate to explain the workings of the puzzle when asked to do so.

From time to time, Nichols took the puzzle to work at Moleculon, either to use various tools to work on it or to play with it during free moments. It was on one of these occasions that Obermayer noticed the puzzle on Nichols' desk. It may also have

been seen by a few other Moleculon employees in Nichols' office. Moleculon did confidential work for the government and its offices were not open to the public in the regular course of its business. Moleculon employees had received security clearances from the government and had signed confidentiality agreements with respect to information obtained in the course of their work.

The issue is whether on the basis of these facts, the Nichols invention was "in public use" within the meaning of Section 102(b) more than one year before the date that the United States patent application was filed. Since that date was March 4, 1970, the critical date for purposes of Section 102(b) is March 4, 1969.

[6] Moleculon urges that even if the paper cube and magnet model is found to represent a reduction to practice, the activity that occurred prior to construction of the wooden cube model was, in any event, within the "experimental use" exception. It is well established that "use of an invention by the inventor himself, or of any other person under his direction, by way of experiment, and in order to bring the invention to perfection, has never been regarded as such a [public] use." Such testing need not be carried out in secrecy or behind locked doors in order to avoid becoming public use. *City of Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126, 24 L.Ed. 1000 (1877); *TP Laboratories v. Professional Positioners*, 724 F.2d 965 (Fed. Cir. 1984).

On the other hand, not everything that can be characterized as experimentation prevents a use from being a "public use." "It is settled law that the experimental use exception is not applicable to experiments performed with respect to unclaimed features of an invention." *In re Smith*, 714 F.2d 1127, 1136 (Fed.Cir.1983). "[T]he rule is that an invention is deemed functional for public use purposes when it can perform the general function for which it has been developed, even though the device might later be refined." *Id. quoting Atlas v. Eastern Airlines, Inc.*, 311 F.2d 156, 160 (1st Cir. 1962).

Nichols' efforts during the years 1959-62 appear to have been devoted largely to refinement of the physical embodiment of the puzzle although he also directed some effort toward developing

a mechanical means of assembly. Neither of these lines of experimentation, however, resulted in any limitations in the ultimate patent claims. Finally, Nichols certainly spent time engrossed in the puzzle aspects of his invention, but again, this could not accurately be characterized as experimental use as delineated in the caselaw.

While I agree with CBS that there was no experimental use after 1959, I nevertheless conclude that the Nichols invention was not "in public use" prior to March 4, 1969. The "public use" and "on sale" bars should be applied with a view toward furthering the underlying policies. In *Philco Corp. v. Admiral Corp.*, 199 F.Supp. 797, 815 (D.Del.1961). Judge Wright pointed out the problems engendered by attempts to apply hard and fast legal rules to the multitude of factual variations that arise and the importance of keeping in mind the policies underlying Section 102(b). In *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, LTD*, 731 F.2d 831, 837 (Fed.Cir.1984), the Federal Circuit indicated that these policies "in effect, define the terms of [section 102(b)]."

The courts have identified four policies underlying Section 102(b). "Operating against the inventor are the policies of (1) protecting the public in its use of the invention where such use began prior to the filing of the application, (2) encouraging prompt disclosure of new and useful information, (3) discouraging attempts to extend the length of the period of protection by not allowing the inventor to reap the benefits for more than one year prior to the filing of the application. In contrast to these considerations, the public interest is also deemed to be served by (4) allowing an inventor time to perfect his invention, by public testing if desired, and to prepare a patent application." *TP Laboratories, supra* at 968.

In general, the courts have construed the public use bar very broadly. In the classic case of *Egbert v. Lippman*, 104 U.S. 333, 26 L.Ed. 755 (1881), for example, the inventor made and gave a single set of steel corset stays to his mistress. She used them in a series of corsets over a period of eleven years. The Supreme Court held that this was public use within the meaning of the statute because the invention had been given over for free and unrestricted use by a person other than the inventor: "If an inventor, having made his

device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public within the meaning of the statute, even though the use and knowledge of the use may be confined to one person." Thus, public use need not be commercial in nature, and need not occur "out in public" as that term is usually understood. For an invention to be in public use, on the other hand, it must be made available to someone else without restriction in its ordinary form or mode of operation.

[7] In its post-trial answering brief, CBS argues that a "single use of an invention without restriction or limitation by even one person who is not an agent of the inventor is sufficient to constitute 'public use' . . . ". That appears to be an accurate statement of the law; however, it is not an apt characterization of what occurred here. The essence of "public use" is the free and unrestricted giving over of an invention to a member of the public or the public in general. What I see here, by contrast, is the inventor's private use of his own invention for his own enjoyment. "Private use of one's own invention is permissible." *Bergstrom v. Sears, Roebuck and Co.*, 457 F.Supp. 213, 224 (D.Minn.1978).[2] "[A]n inventor may continue for more than a year to practice his invention for his private purposes or his own enjoyment and later patent it." *Id.*, *quoting Metallizing Engineer Co. v. Kenyon Bearing & A.P. Co.*, 153 F.2d 516, 520 (2d Cir.1946), *cert. denied*, 328 U.S. 840, 66 S.Ct. 1016, 90] L.Ed. 1615 (1946).

[8] While it is true that Nichols explained his puzzle to a few close colleagues who inquired about it and allowed Obermayer to in fact use it, the personal relationships and other surrounding

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[2] In *Bergstrom*, the inventor placed his invention, a fireplace grate, in his family room. Only members of the family, children of friends, and adult guests were admitted to the room, and there was no evidence to suggest that anyone "either understood its significance or were able to convey visual observation of the grate to the public domain." *Bergstrom* at 224. Accordingly, the court held that the inventor did not place the invention in anyone's hand prior to the critical date.

circumstances were such that Nichols at all times retained control over its use as well as over the distribution of information concerning it. He never used the puzzle or permitted it used in a place or at a time when he did not have a legitimate expectation of privacy and of confidentiality. In these respects, I consider the exposure to Obermayer in Nichols' office no different than the exposure of Nichols' close friends in his home.

The fact that each person to whom the puzzle was demonstrated was not expressly sworn to secrecy is not determinative of, or even highly relevant to, the public use issue. The Court of Appeals for the Federal Circuit has recently noted that the importance of an express confidentiality agreement lies primarily in the fact that it is an indicator of the inventor's retention of control over the use of his invention. In *TP Laboratories, supra* at 972, the court said that "a pledge of confidentiality is indicative of the inventor's continued control which is here established inherently by the dentist-patient relationship of the parties." Here also the relationship between the participants in the alleged uses evidences a retention of control by Nichols. None of those participants had any basis for inferring that the puzzle was being given over by Nichols for their free and unrestricted use. Holding the public use bar inapplicable in these circumstances will not remove anything from the public domain. Moreover, there is absolutely no evidence in this case of commercially motivated activity by Nichols during the relevant period. Accordingly, the underlying policy against extending the effective term of exclusivity is not offended by a finding that the Nichols invention was not in public use.

B. "On Sale"

The formal written assignment to Moleculon of all rights to the Nichols invention is dated March 6, 1969, and thus occurred within the one-year grace period. That agreement "sells, assigns and transfers to Moleculon [Nichols'] entire right, title and interest in and to said TWIST PUZZLE invention together with the right to apply for Letters Patent of the United States and all other countries covering said invention." [DX-6]. CBS argues, however, that the Nichols invention was "on sale" prior to the critical date of March

4, 1969 by virtue of the negotiations between Nichols and Obermayer in January of 1969.

[9] It is far from clear that what occurred in January of 1969 can fairly be characterized as an agreement or offer to assign Nichols' rights in his invention to his employer. Assuming for present purposes, however, that Nichols did agree in January of 1969 to assign to Moleculon any inchoate patent rights present in his puzzle, I nevertheless conclude that such a transaction does not fall within the "on sale" bar of Section 102(b) because only potential patent rights and not a device embodying the invention was involved.

[10] There is no indication in the subsequent written instrument that the parties contemplated the sale or transfer to Moleculon of the single physical embodiment of the puzzle then in existence. Nor is there any other evidence in the record to that effect. The single issue to be decided, then, is whether an assignment or sale of the potential patent rights to an invention is a sale of "the invention" within the meaning of Section 102(b).

Considering that the assignment of patent rights, both before and after issuance of the patent, is clearly not a novel transaction, there is surprisingly little case law that squarely addresses the issue. What authority there is, however, indicates that Section 102(b) restricts only the sale of the physical embodiment of the invention and not the transfer of rights to a prospective patent covering the invention. In fact, this appears to be a long-established principle of hornbook law. Back in 1936, for example, the following rule was stated in C. Rivise & A. Caesar, *Patentability and Validity* § 284 at 526-7 (1936):

> The statute refers to the invention being on sale, but obviously *the device of the invention* and not *the right to patent protection* is meant. For this reason, the Court in *United States Electric Lighting Co. v. Consolidated Electric Light Co.*, 33 Fed.Rep. 869 (S.D.N.Y. 1888) refused to invalidate Patent No. 306,980 for a method of manufacturing carbon conductors for incandescent lamps, though it appeared that the inventor more than two years prior to the filing of his patent application had assigned his patent rights to the plaintiff.

(Emphasis in original). Similarly, *Deller's Walker on Patents* states that "[a]n assignment of the right to secure a patent is not placing the invention on sale." Section 147, at 713 (2d ed. 1964).

On the other hand, I have been unable to find any case holding that the assignment or transfer of potential patent rights, without more, constitutes a sale of the invention within the meaning of Section 102(b). None of the cases cited by the defendant stands for that proposition.

In *Kock v. Quaker Oats Co.*, 681 F.2d 649 (9th Cir.1982), *cert. denied*, 459 U.S. 1147, 103 S.Ct. 787, 74 L.Ed.2d 994 (1983), the court undertook a detailed exposition of the so-called "experimental purpose exception" to the on-sale bar. That aspect of the case is clearly inapplicable here. More important, however, there was a clear sale and delivery of a prototype toy embodying the invention. In *Kock*, the original agreement was for the development and building of a prototype toy meeting certain specifications. Thereafter, the inventor and the toy company entered into an agreement selling the toy and assigning all rights to any invention embodied therein to the toy company. The court had no occasion to consider the significance of an assignment of inchoate patent rights absent a sale of the device.

Nor does *Manufacturing Research Corp. v. Graybar Elec. Co.*, 679 F.2d 1355 (11th Cir.1982) lend support to the position urged by the defendant. That case involved both a licensing agreement and an offer to sell the device itself, and the court did not focus on the effect of the licensing agreement alone. In finding that the device had been placed on sale prior to the critical date, the court held that "uncontroverted evidence establishes beyond doubt that [the first inventor] had sold such a device to [a manufacturer] [prior to the critical date]." *Id.* at 1361.

When an inventor assigns his rights in his invention to another, he simply places someone else in his shoes. For this reason, I perceive no reason why such a transaction should trigger the running of the one year grace period. Accordingly, I decline to hold that Nichols' invention was "on sale" in January of 1969.

The defendant further argues that Obermayer's contacts with Parker Brothers in February of 1969 constitute an invalidating offer to sell within the meaning of Section 102(b). Although it is settled law that offers to sell fall within the "on sale" bar, *Chicopee Manufacturing Corp. v. Columbus Fiber Mills Co.*, 165 F.Supp. 307 (M.D. Ga.1958); *Timely Prods. Corp. v. Arron*, 523 F.2d 288 (2d Cir.1975), I do not believe that anything that occurred prior to March 4, 1969 can fairly be characterized as an offer to sell the invention.

[11] On February 6, 1969, Obermayer telephoned Parker Brothers to determine whether they were interested in receiving a submission of a puzzle idea from an outside inventor. Nothing concerning the nature or workings of the Nichols puzzle was disclosed. Obermayer did not offer to sell anything; he merely inquired, in effect, whether offers from outsiders were considered by Parker Brothers and, if so, how one should be made. It was not until March 7, 1969, after the critical date, that Moleculon submitted detailed information concerning the puzzle for consideration by Parker Brothers.

IV. THE UTILITY OF CLAIMS 3, 4, AND 5

[12] Section 1.01 of the Patent Act authorizes the grant of a patent for "any new and *useful* process, machine, manufacture or composition of matter or any new and *useful* improvement thereof. . . . " (emphasis added). To meet the utility requirement thus imposed an invention must satisfy the following three tests: 1) it must be operable and capable of use, i.e., it must perform its designated function; 2) it must achieve "some minimum human purpose"; and 3) the purpose achieved must not be illegal, immoral, or contrary to public policy. 1 D. Chisum, *Patents* ¶ 4.01, 4-2 (1984).

Claims 3, 4, and 5 of the '201 patent read as follows:

> 3. A method for restoring a preselected pattern from sets of pieces which pieces have constantly exposed and constantly non-exposed surfaces, the exposed surfaces adapted to be combined to form the preselected pattern, which sets when in random engagement fail to display said preselected pattern which comprises:

A. engaging eight cube pieces as a composite cube;

b. rotating a first set of cube pieces comprising four cubes about a first axis;

c. rotating a second set of four cubes about a second axis; and

d. repeating steps (b) and (c) until the preselected pattern is achieved.

4. The method of claim 3 which includes rotating sets of cubes about one of three mutually perpendicular axes with reference to the composite structure.

5. The method of claim 3 wherein the sets of cubes are rotated through multiples of 90°.

CBS urges that these claims are invalid because they are inoperable.

[13] Claim 3 is a method claim covering "[a] method for restoring a preselected pattern" after the puzzle has been randomized. It prescribes the general method of rotation to be used in attempting to solve the puzzle. CBS argues that this method calls for rotation of only *two* sets of pieces around only *two* axes, and, hence, is inoperable because a puzzle randomized or scrambled by rotation about three mutually perpendicular axes cannot be solved by rotation about only two axes. Claims 4 and 5 are dependent claims, and therefore, it is contended, incorporate the fatal defect of Claim 3.

CBS argues that pursuant to the text of Claim 3, the puzzle user, in order to carry out step (d), must go back and rorate precisely the same set of cubes around precisely the same axis as chosen in step (b), proceeding then to precisely the set and precisely the axis chosen in step (c), and so on, and so on. CBS seeks to bolster this argument by explaining the wording as a reference to a two-dimensional puzzle included in the original patent application and

subsequently dropped. I do not find that line of reasoning persuasive. The original patent application had eight device claims and a single method claim. That method claim was clearly intended to cover the cube puzzle with its three axes, as well as the flat embodiment with four axes that was later deleted. Moreover, it makes no sense to explain the alleged reference to two axes and two only, as an erroneous throw-back to a puzzle that itself had four axes. The draftsman of the patent application might well have chosen other, less ambiguous language; I believe, however, that he intended to use the words he did and that he understood them to allow for rotation around all three axes at some point in the solution of the cube puzzle.

The law does not require a rigidly literal reading of claim language. Rather, "if the claim [is] fairly susceptible of two constructions, that should be adopted which will secure to the patentee his actual invention, rather than to adopt a construction fatal to the grant." *Smith v. Snow*, 294 U.S. 1, 14, 55 S.Ct. 279, 284, 79 L.Ed. 721 (1938). Similarly, in *United States v. Adams*, 383 U.S. 39, 49, 86 S.Ct. 708, 713, 15 L.Ed.2d 572 (1966), the Court stated that "it is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention." In *Adams*, the Court looked to the specifications to determine the ends sought to be achieved by the contested patent. The Court concluded that the intent to employ a water electrolyte was obvious in light of the specifications, despite the failure to refer to any electrolyte in certain claims, and was plainly "not the after-thought of an astute patent trial lawyer." *Id.* at 49, 86 S.Ct. at 713.

It is plain from the specifications of the '201 patent that the user is to rotate sets of cube pieces about three axes in order to solve the puzzle. Not only are three axes an inherent feature of the 2x2x2 cube described in the specifications, but there are explicit references to these three axes or the three corresponding coordinate planes in every part of the patent, from the abstract to the drawings. Accordingly, the text of Claim 3 should not be construed as limited to rotation about two axes unless it permits of no other construction.

Claim 3 clearly can be read to contemplate rotation about three axes. By using the indefinite article "a" (i.e., "*a* first axis," "*a* second axis"), it is left open to the user, when he comes to the third step, and is directed to repeat the first two steps, to go back to *the* first axis, or alternatively to select another axis instead, depending upon his solution strategy. This seems to be a reasonable interpretation of the words of the claim, and is clearly consonant with the implications of the rest of the patent and the intent of the patentee.[3]

It is further urged that the method Claims 3, 4, and 5 are not a useful or an enabling disclosure, in the sense of teaching anyone a method for solving the puzzle. Nor, it is alleged, is such a method of solution set out anywhere else in the patent. While the allegations are true, they are irrelevant. The object of a puzzle is to challenge the wits of the user and the puzzle isn't designed to carry out one particular "correct" series of moves. The solution is the converse of whatever sequence of steps is used to scramble the puzzle on a particular occasion. It is interesting to note in this regard that the Rubik's Cube puzzle is sold by Ideal with an instruction insert that describes little beyond the general method of scrambling the cube. The user is then instructed to "Return all 6 sides to their original solid colors." If CBS' argument is correct, Ideal has been selling a useless item.

There is a strong presumption that an issued patent has utility, since utility is one of the basic criteria for patentability. Accordingly, this presumption can only be overcome by clear and convincing evidence to the contrary. Ambiguous claim language, where such language can be read a easily to uphold the patent as to strike it down simply fails to reach the required level of proof to support a finding of invalidity. Moreover, it is axiomatic that claims are to be read in light of the specifications and with an eye to ascertaining

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[3] It is true that when one so construes Claim 3, it is difficult to understand why Claims 4 and 5 were included since three mutually perpendicular axes and ninety degree turns are inherent in the cube puzzle described in Claim 3 and its solution. The fact that Claims 3, 4 and 5 may be coterminus, however, does not tender them invalid. It is further clear that Claim 4, being dependent, could not have been intended to broaden Claim 3 limited to rotations about two axes only.

the meaning of the patent. Bearing in mind the foregoing principles, I conclude that Claims 3, 4, and 5 of the '201 patent are not invalid for lack of utility.

V. ANTICIPATION

[14, 15] To be patentable, an invention must be new at the time of its discovery by an original inventor. This novelty requirement is one of the essential prerequisites of patentability. 35 U.S.C. § 102. The test for lack of novelty, i.e., anticipation, is one of strict identity. "To anticipate a claim, a prior art reference must show each and every element claimed." *General Electric v. United States*, 215 Ct.Cl. 636, 572 F.2d 745, 768 (1978); *Leinoff v. Milona & Sons, Inc.*, 726 F.2d 734, 738 (Fed.Cir.1984). Anticipation will be found only if "all elements of a claimed invention arranged as in the claim" can be found in a single prior art reference. *Connell v. Sears, Roebuck & Company*, 722 F.2d 1542, 1548 (Fed.Cir.1983). Since the requisite degree of identity is rarely found, anticipation has been termed a "technical defense." *Shaw v. E.B. & A.C. Whiting Co.*, 417 F.2d 1097 (2d Cir.1969); *Walker v. General Motors Corp.*, 362 F.2d 56, 58 (9th Cir. 1966).

[16] CBS contends that Claims 1 and 6 of the '201 patent are invalid under 35 U.S.C. § 102 because they are anticipated by the Gustafson patent. Since Claims 1 and 2 were formally disclaimed by Moleculon on April 19, 1983 it is necessary to consider only the validity of Claim 6.

Anticipation is to be determined by reference to the claim language of the patent whose validity is in question. Expressed another way, anticipation is determined by whether claim "reads on" the prior invention or reference. If every element of Claim 6 of the § 201 patent can be found in the Gustafson puzzle, then that claim is anticipated and therefore invalid. Claim 6 of the '201 patent reads as follows:

> 6. A puzzle comprising at least eight pieces, visually distinguishable indicia on at least one face of each piece with the eight pieces together having at least two visually distinct indicia, means associated with each of the remaining faces only of each of the pieces releasably

> maintaining the pieces in assembled relationship forming a composite structure, said maintaining means enabling three interaffiliated groups of four contiguous pieces each to be rotated respectively about three mutually perpendicular axes, the two distinct indicia being so located on the respective pieces that the groups can be rotated to effect the display of at lest two distinct indicia of the composite structure.

The Gustafson patent teaches a "mechanical puzzle having a plurality of varicolored parts which are movable relative to each other to form various patterns." The puzzle consists basically of a spherical outer shell that rides on a substantially concentric spherical inner core. The outer shell is divided into eight equal parts which are held to the core by tongues that fit into and slide along a series of grooves cut into the core. Groups of four contiguous pieces, viz., hemispheres, may be rotated relative to one another around any of three mutually perpendicular axes.

Claim 6 of the '201 patent does not literally read on the Gustafson sphere because Nichols describes a solid cut by three perpendicular planes, while Gustafson is essentially a spherical shell cut by three perpendicular planes which rides on a spherical core. As a result, Claim 6 speaks of pieces with a plurality of faces (i.e. "the remaining faces") which do not have visually distinguishable indicia, while Gustafson's shell like octants have a colored "outer surface" and only one "inner surface."

CBS contends vigorously that the shell segments of the Gustafson puzzle have four internal faces because each edge is a face. In support of this position, Mr. Fischer, CBS' expert witness, argued that every solid, "even a piece of paper," has four faces, and, therefore, Nichols reads directly on Gustafson. While this may be technically correct, it flies in the face of the principle that words in patent claims are ordinarily to be given their usual meaning. I note, for example, that Gustafson, himself, distinguishes in his patent between the inner and outer *"surfaces"* of his pieces and their side *"edges"*.

Since Claim 6 contemplates a plurality of inner faces and Gustafson teaches a single inner face, Claim 6 is not anticipated by Gustafson.

VI. OBVIOUSNESS

CBS further contends that if Claim 6 is not found to be literally anticipated by Gustafson, it is at least obvious in light of the prior art, and that Claims 3, 4, 5, and 9 are obvious as well. In support of this position, CBS argues that "[a]s a matter of law, patentability does not arise from a mere change in form." It is urged that the sphere and the cube are obvious alternative forms and patentability cannot arise from a mere substitution of one for the other. It is clear, however, that the old "negative rules of invention" that preceded the enactment of Section 103 are no longer determinative in deciding individual cases. *See Chisum*, § 504[5] (1984). Form may be insubstantial, or it may be the essence of the invention, as where form determines function.

[17] The test of obviousness under 35 U.S.C. § 103 is whether "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545 (1968). As explained in the *Graham* case, the following factual inquiries are to be made: 1) the scope and content of the prior art are to be determined; 2) differences between the prior art and the claims at issue are to be ascertained; and 3) the level of ordinary skill in the pertinent art is to be resolved. It is in light of these facts that a determination as to the obviousness of the subject matter as a whole is to be made. Secondary considerations, such as commercial success, long felt but unsolved needs, the failure of others, etc. may also be taken into account.

A. The Prior Art

The parties agree that the Gustafson patent is the most pertinent prior art. As earlier noted, the Gustafson patent was not considered by the Patent Examiner. Of the five patents which were cited during the prosecution of the '201 patent, one was cited against the flat embodiment and was no longer relevant after that species was dropped and none of the other four covered a mechanical puzzle. Duggar, U.S. Patent No. 2,939,243, patented June 7, 1960, is not

a puzzle patent at all, but claims toy building blocks mounted with magnets to hold together the assembled structures. The Bowden, British Patent No. 283,666 (1928), and Pyle, British Patent No. 675,678 (1952), patents were cubic puzzles, but they consisted of individual blocks designed to be assembled one by one to display a pattern or picture on the external faces of the composite cube. Finally, the Dreyer patent, U.S. Patent No. 3,222,072, was also basically an assembly puzzle. It consisted of a series of 27 cubes strung along an elastic cord, the object being to assemble the cubes into a single composite cube.

The only other prior art puzzle which warrants mention is the MacMahon puzzle which was invented in 1893. This assembly puzzle consists of eight multi-colored subcubes which can be arranged to form a composite 2x2x2 cube. In its properly assembled form, each outer face of the composite cube must be of uniform coloration, and in addition, the color of the internal faces of the subcubes must be the same wherever two of the subcubes touch. The external coloration of this puzzle is similar to that of the Nichols and Rubik's cubes, with one solid but different color on each of the six sides of the composite cube.

B. Level Of Ordinary Skill In The Art

[18] The pertinent art is that of puzzle design. There does not appear to be any particular common denominator of formal academic training required; puzzle designers include artists, designers and other creative persons, as well as engineers and mathematicians. Still others active in designing puzzles are avid hobbyists, with little closely related formal training. A good example of this is Nichols himself, with a Ph.D. in organic chemistry.

Although there are professional puzzle designers working for the large toy companies, it appers that few concentrate all their efforts on puzzle design. Moreover, the significant breakthroughs in puzzle design are not infrequently made by puzzle enthusiasts and hobbyists rather than professionals as evidenced by Gustafson, Nichols and Rubik.

Moleculon's expert witness, Gerald Slocum, who is one of the foremost puzzle experts and puzzle historians in the world,

expressed his view that puzzles tend to arise as a single idea from a single individual. His study of nine hundred puzzle patents demonstrated that 86% were issued to persons who held no other puzzle patents, with another 10% of the inventors holding only two patents. He was also of the opinion that the level of skill in the art of puzzle design was very low compared to most scientific and engineering disciplines, because it tended to consist of isolated activity by individuals rather than a continuous building on an established base of knowledge. This explains the apparent discrepancy between the generally high level of education among those engaged in puzzle design, and the rather unsophisticated state of the puzzle art during the 1960's.

Based upon his study of the puzzle literature and patents, as well as his collection of puzzles, Slocum testified that the largest category of puzzles, patented and reported during that period were two- and three-dimensional jigsaw puzzles. The second largest category was two- and three-dimensional assembly puzzles. Finally, there were a few sliding-block puzzles, game puzzles, and some string or wire puzzles. Notably absent were complex mechanical puzzles.

Charles Zimmerman also testified as an expert witness for Moleculon. A civil engineer with a masters degree in structural engineering, Zimmerman worked in the Preliminary Design Department at Mattel Toymakers during the years 1963 through 1975. He was Supervisor of Preliminary Game Design at Mattel during 1968 and 1969, a position which included responsibility for developing a line of puzzles. He also was responsible for reviewing the hundreds of outside submissions received by Mattel. Zimmerman testified to the relatively unsophisticated level of the puzzle art during that period. He stated that he could "think of nobody in any toy company that was creating original puzzles, which were being marketed by toy companies." [Tr. 656]. The puzzles tended to be variations on old, familiar type puzzles, using attractive new materials. They did not involve elaborate mechanical mechanisms.

Based on the foregoing testimony, I conclude that the art of puzzle design was relatively unsophisticated and that artisans of ordinary skill in this field, while having higher than average education and intelligence, practiced the art as an avocation only.

C. The Differences Between The Prior Art And The Subject Matter Claimed

Comparing the prior art to the subject matter of the '201 patent requires that Claims 6, 3, 4, 5, and 9 of the '201 patent be considered individually since some are limited to the cube form of the puzzle while others seek to claim more broadly.

1. Claim 6

[19] As earlier indicated, the Gustafson puzzle is a sphere. Its surface is divided into octants which are capable of rotation in groups of four hemispherically related pieces around any one of three mutually perpendicular axes. The patent indicates that the external surface should bear some visual indicia, but no particular coloration is specified or claimed. Gustafson noted that:

> Assuming that certain color patterns are established in advance as the puzzle goals or solutions, it will further be understood that after the segments have been displaced from said established patterns that considerable imagination and color perception are required again to move the segments into the estabalished patterns.

Col. 5, l. 71 to Col. 6, l. 1.

In describing his invention, Nichols points out in the specifications that "other geometric configurations [than the cube] may be used. . . . For example, a sphere divided into eight octants represents the same concept in a different form." (Col. 2, l. 29-32). Claim 6 is deliberately drafted to be broad enough to cover such a sphere. The subject matter of Claim 6 may therefore be described as including a sphere divided along three mutually perpendicular plane and held in assembled form while permitting three groups of four contiguous pieces each to be rotated respectively around three mutually perpendicular axes, said pieces together having at least two visually distinct indicia.

The only difference between Gustafson's sphere and the Nichols' sphere is that the user of the Gustafson puzzle rotates sets of octant shaped shells which are held into a composite sphere by a tongue-in-groove arrangement involving a spherical core, while the user

of the Nichols sphere rotates sets of octant shaped pieces having a plurality of interior surfaces which are held together in a composite sphere by magnetic or mechanical means. While there is no outright concession by Moleculon in the briefing, I do not understand it to seriously contend that a puzzle designer of ordinary skill having been exposed to the Gustafson sphere would not have realized that Gustafson's shell pieces could be given a third dimension without interfering with their ability to rotate in sets around three mutually perpendicular axes. Indeed, Nichols himself, as well as Moleculon's experts, conceded that Gustafson's sphere and Nichols' Figure 4, depicting a sphere comprised of eight solid pieces, represented the identical puzzle concept. I, therefore, hold Claim 6 to be invalid under 35 U.S.C. § 103.

2. Claims 3, 4, 5, and 9

[20] In contrast to Claim 6, Claims 3, 4, 5, and 9 are limited to cubic embodiments. Claim 3, and its dependent claims, 4 and 5, will read on the 2x2x2 form of the puzzle, as well as on such larger cubic embodiments as the 3x3x3 and the 4x4x4, because it employs the open transitional phrase "which comprises." The term "comprising" denotes a patent claim as being "open," meaning that the recitation of structure in the claim is open to additional structural elements not explicitly mentioned. Rosenberg, *Patent Law Fundamentals* at 46 (1978).

Claim 9 on the other hand is limited to the 2x2x2 form of the puzzle composed of eight subcubes. Although Claim 9 also uses the open transitional term "comprising," this limitation is imposed because the claim explicitly refers to "visually distinguishable indicia on three faces only of each cube . . . " thereby excluding larger embodiments wherein the center cube(s) on a face will have only one colored surface. Claim 9, in contrast with Claims 3, 4, and 5, is also limited to a single preselected pattern consisting of a distinct indicia on each of the six faces of the composite cube.

As earlier noted, MacMahon teaches a cube shaped assembly puzzle. Even though there is a physical resemblance between Nichols' cube and the MacMahon puzzle in its assembled state, as puzzles they are fundamentally different in concept and challenge.

Nothing in MacMahon suggests the rotation of pieces to create a preselected pattern.

Gustafson, of course, does teach the rotation of octants of a sphere to achieve a preselected pattern and the issue for decision is whether it would have been obvious to one of ordinary skill in the puzzle design art in the late 1960's to combine MacMahon and Gustafson in such a way as to come up with Nichols' cube puzzles. I conclude that nothing in the prior art suggests such a combination and that Claims 3, 4, 5 and 9 are not obvious from MacMahon and Gustafson.

CBS, as I understand it, urges that, while there is no express teaching of a combination in his patent, Gustafson's concept itself would suggest a cube shaped embodiment to one of ordinary skill in the art. It relies heavily in this regard on the testimony of Mr. Zimmerman that he would have considered other possible shapes, including a cube, if the Gustafson puzzle had been submitted to him for commercialization by Mattel.

I agree with CBS that it would have been obvious to consider whether Gustafson's puzzle could be changed into other geometric shapes and to conclude that it would be possible to come up with a cube shaped embodiment. This does not mean, however, that the Nichols' concept for a cube shaped puzzle would obviously flow from Gustafson's concept or the patent describing it. Indeed, based on the record in this case, one can conclude with some confidence that the contrary is true. It would not have been obvious to realize that one could achieve a puzzle having many times the complexity, challenge and puzzle appeal of Gustafson by going to a cube and utilizing each of the 24 (as in the 2x2x2) or more (as in the 3x3x3 or 4x4x4) exposed faces of the subcubes as distinct pieces of the puzzle pattern the location of which vis-a-vis each other exposed face could be varied through rotations around three axes.

Slocum, like Zimmerman, acknowledged that, as a puzzle designer, he would have recognized the possibility of going to a cube from the Gustafson sphere. Both explained, however, that the advantages of the Nichols' cube as a puzzle would not have been

obvious. To Slocum, the Nichols' concept was "at the top of the list of breakthroughs;" to Zimmerman, it represented "a quantum leap from a sphere."

The most persuasive facts with respect to the nonobviousness of Nichols' puzzle, however, are those facts relating to the activities of Gustafson, himself. Gustafson is certainly one of at least ordinary skill in the art. Although not a breakthrough of the magnitude of the Nichols cube, his puzzle represents a significant advance over the prior art. After developing that puzzle, he realized that it would be a better puzzle if it offered a greater challenge than was presented by the manipulation of the eight faces covering his sphere. As a result, he considered other solids which would offer more complexity than the sphere. During this search for greater complexity, he dismissed the cube as offering only six faces and went on to work with such larger platonic solids as the octahedron, tetradecahedron, and icosahedron. None proved satisfactory, however. If the inventor of the Gustafson sphere did not perceive the superior puzzle which Nichols conceived, I am unwilling to say that one of ordinary skill in the art would have found Claims 3, 4, 5, and 9 obvious from Gustafson. Accordingly, I hold that Claims 3, 4, 5, and 9 are nonobvious and, therefore, valid.

VII. INFRINGEMENT OF CLAIM 9

Claim 9 is the narrowest apparatus claim. Moleculon maintains that it is infringed by CBS's two 2x2x2 puzzles – Rubik's Pocket Cube-Japan and Rubik's Pocket Cube-Taiwan. Claim 9 reads:

> A puzzle comprising eight cubes, visually distinguishable indicia on three faces only of each cube with the eight cubes together having six visually distinct indicia.
>
> means associated with each of the remaining faces only of each of the cubes releasably maintaining the cubes in assembled relationship forming a composite cube, said maintaining means enabling three interaffiliated groups of four contiguous cubes each to be rotated respectively about three

mutually perpendicular axes,

the six distinct indicia being so located on the respective cubes that the cube groups can be rotated to effect the display of a distinct indicia on each of the six faces of the composite cube.

According to CBS, Moleculon has not proved infringement of this claim by either of these accused puzzles because (1) their pieces are not "cubes" and have no "remaining faces," (2) their pieces are not "releasably maintained" in a composite cube, and (3) they have no "means associated with each of the remaining faces only" to hold the pieces together.

1. "Cubes" having Interior "Remaining Faces"

[21] CBS argues that the pieces of Rubik's Pocket Cubes are not "cubes" because a portion of each of the internal faces of each piece has been cut away to provide or accommodate the means for holding them in a composite cube. It is literally correct that the pieces of Rubik's Pocket Cubes are not geometrically pure cubes. It is also true, however, that from the perspective of the puzzle user they are accurately described as cubes and that Nichols was describing his invention from that perspective. The fact that Claim 9 was intended to refer to pieces that appeared to be cubes when incorporated in the puzzle rather than pure cubes is indicated by Nichols suggested embodiments utilizing "a pop-in snap linkage" or a "tongue-in-groove arrangement" since one would expect these approaches to involve either an indentation in or a projetion from the interior segment of the pieces. The reasonableness of Moleculon's interpretation of Claim 9's references to cubes is also demonstrated by the fact that Rubik referred to the equivalent pieces of his puzzle in his Hungarian patent as "cubes." (PX-66A; English translation). Similarly, Ideal's Rubik's Pocket Cube package refers to its pieces as "sub-cubes." (PX-67).

Just as Claim 9 does not require a perfect and complete cube, it also does not mandate perfect and complete internal faces which are square in shape. The accused devices have internal faces and the fact that they are partially cut away is not detectable from the

perspective of the puzzle user. Accordingly, I conclude that the puzzle described in Claim 9 of the '201 patent has "remaining faces."

2. "Means . . . Releasably Maintaining The Cubes In Assembled Relationship Forming a Composite Cube"

[22] CBS contents that the word "releasably" limits Claim 9 to structures the components of which can be disengaged from one another. Accordingly, it is urged, this claim covers Nichols' magnetically engaged cube, but not the various Rubik's cubes which are held together by complex mechanical mechanisms that do not lend themselves to ready disengagement during play.

CBS argues at length that in Nichols' early drafts of his patent application he used the term "releasably engaged" to connote a structure held together yet capable of being pulled apart or disengaged. This special meaning of the term "releasably" is alleged to have been carried over into the phrase "releasably maintaining" in the final patent claims, the result being that those claims cover only structures capable of ready disengagement during play. I find the drafts which preceded the patent application to be ambiguous on the point. These is evidence that Nichols at times used the words "releasably engaged" in the manner urged by the defendant, but I fail to find the consistency of usage suggested. Were it otherwise, I would still not give those drafts weight, however, since they are not available to those who would seek to determine the scope of the patent.

Most importantly, it is clear from the patent application itself both that Nichols recognized that some structures embodying his invention could be pulled apart or disengaged during play, while others could not, and that he intended to claim both types of structure. In the specifications of the '201 patent, it is stated unambiguously that "the invention includes such devices wherein the engagement is provided by mechanical or magnetic means providing structural integrity without restriction of rotational freedom . . . ." (Col. 1, l. 30-34). It is also explicitly pointed out in the section entitled "Description of Preferred Embodiment"

that while disengagement is an inherent feature of magnetically-engaged cubes "it is also posible to achieve engagement by mechanical rather than magnetic means, as for example by using a pop-in snap linkage, or a tongue-in-groove arrangement allowing rotation without disengagement." (Col. 2, l. 48-52).

There are only two independent apparatus claims in the '201 patent. Claims 6 and 9. Both use the phrase "releasably maintaining." Consequently, if the limitation urged by CBS is read into those words, there is a clear inconsistency with what the specification explicitly states to be the invention. While the meaning urged by CBS would not be unreasonable if one did not have the benefit of the specifications, in the context of the patent as a whole, it is far more reasonable to read the phrase "releasably maintaining" as referring to a means of holding the puzzle pieces in assembled relationship while permitting relative rotation of groups of pieces.[4]

[23] CBS maintains, however, that file wrapper estoppel precludes Moleculon from asking this Court to interpret "releasably" as just suggested. The doctrine of prosecution history of "file wrapper" estoppel serves to preclude a patent owner from regaining subject matter that was surrendered in order to obtain a patent: "[W]here . . . broad claims are denied and a narrowed one substituted, the patentee is estopped to read the granted claim as the equivalent of those which were rejected."

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[4] The phrase "releasably maintained" was drafted by the Patent Examiner as part of a suggested allowable claim. Nichols testified at trial that he accepted the term as written because "my general reaction . . . was that it was a good description of my invention, my puzzle device . . . . My general reaction was that it was a good description because maintaining . . . describes to my ear more effectively what the means are really to do, maintain this as a cubic assembly, than the word 'engage,' which alone doesn't say quite as much about it. But my reaction was to this basic linguistic level that it sounded to me like an intended improvement on the part of the Examiner, and I was willing to keep it as such . . . . My understanding of the phrase 'releasably maintain' was that it referred to a maintained structure, that is, one which is kept in the existing state, but which was releasable in the sense that it could be freed from that restraint in order to allow rotation." [Tr. 987-989].

Keystone Driller Co. v. Northwest Engineering Corp., 294 U.S. 42, 48, 55 S.Ct. 262, 265, 79 L.Ed. 747 (1935).

[24] In support of its position that Moleculon acquiesced in a narrowing construction of "releasably," CBS refers to a paragraph in the prosecution history in which Mr. Stevens, the patent attorney prosecuting the '201 patent on behalf of Nichols and Moleculon, made the following statement:

> At the interview the Examiner cited an additional reference, U.S. Patent 3,222,072, Dreyer. This reference has been considered and clearly does not disclose sets of cubes maintained in releasable relationship. This is supported in Figures 2 and 3 wherein all the cubes are physically secured together. In Dreyer the sets of cubes, such as in Figure 2, do not rotate about mutually perpendicular axes. . . . [DX-123, File Wrapper, at 35].

CBS argues that, by virtue of this statement, the '201 patent is limited to means of assembly that allow disengagement or disassembly of the composite structure.

Dreyer is an assembly block puzzle consisting of smaller blocks held together by an elastic band to provide a continuous unit. The puzzle is played by twisting the string of cubes in a variety of ways to create different shapes with the ultimate shape being a composite cube. Each cube in Dreyer is physically attached to the next cube by means of an elastic band, whereas in Nichols and in defendant's products, the cubes are not physically secured together in the Dreyer sense because they can be rotated during operation of the puzzle so that originally adjacent cubes are no longer adjacent to each other.

Stevens was trying to convey not that the Nichols puzzle may be separated when played, but rather the distinction that in Dreyer the cubes are permanently secured together in a particular order and there is no way to move, say, cube no. 3 out of its position. It will always have cube no. 2 on one side and cube no. 4 on the other no matter how they are twisted about. Stevens'

explanation to the patent examiner that "releasably engaged," as used in Nichols, demonstrated movement quite different from the movement of cube pieces available in Dreyer, did not in any way restrict or limit the meaning of the term "releasably." He simply explained that the kind of releasability employed in the Nichols puzzle does not exist in Dreyer, where the pieces are held together by an elastic cord and can never be rotated in sets so that adjacent cubes cease to be next to each other.

3. "Means Associated With Each Of The Remaining Faces Only Of Each Of The Cubes"

[25] Nichols' embodiment using magnets to "releasably" maintain the cubes in an assembled relationship forming a composite cube had magnets implanted in each of the faces which did not have a "visually distinguishable indicia" on it. Moreover, the mechanical means suggested by Nichols for releasably maintaining the cubes in a composite — i.e. "a pop-in snap linkage" or "a tongue-in-groove" arrangement — could presumably be executed in such a manner that there was either physical contact between the means and each internal face or incorporation of the means into each internal face. CBS relies upon these facts and the above-quoted language of Claim 9 in maintaining that such contact or incorporation is a material limitation on that claim. I find this reading of Claim 9 unduly restrictive, however.

"Associated" is not commonly regarded as limited to physical connection. It is frequently used, for example, to refer to component parts which unite with one another in function.[5] For this reason, I agree with Moleculon that "associated with" does not require contact with or incorporation in each internal face. I cannot agree, however, that it is broad enough to encompass any means which directly or indirectly "maintain[s] these [interior] faces in their physical relationship to the faces of the neighboring subcubes." (Pl. Br. p. 103).

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[5] *See, e.g. The Concise Oxford Dictionary* (1982) (joined in . . . function); Burton, *Legal Thesaurus* (1980) ("cooperant, cooperative, . . . coworking"); *Webster's Unabridged Third New International Dictionary* (1966) ("closely connected, joined, or united with another as in interest, function, activity, or office").

The means for "releasably maintaining" in Claim 9 does not hold the physical relationship of an internal face to any given face of a neighboring subcube. The only physical relationship which it does maintain is the "assembled relationship forming a composite cube" and the means perform precisely this same function for the external faces as well as the internal ones. Since we know that the draftsman, by virtue of his reference to the "remaining faces only," meant to convey the idea that the means was associated with the internal faces in a way it was not associated with the external faces, Moleculon's broad interpretation of "associated" cannot be accepted.

This does not end the matter, however. The internal faces of the subcubes of Rubik's Pocket Cube-Taiwan are partially cut away in such a manner that the structure constituting each face acts as a tongue which fits into grooves formed by other internal pieces so as to releasably maintain the integrity of the composite cube. Clearly, this relationship between the "means" and the "remaining faces only of each of the cubes" is an "association" within the meaning of Claim 9.

The mechanical "means" for maintaining the integrity of the composite cube of Rubik's Pocket Cube-Japan differs from that of the Taiwan pocket cube. While the "means" of "releasably maintaining" the Japanese version also relies upon the tongue-in-groove principle, the structures constituting the interior faces do not serve as the tongues.[6] They do cooperate with the "means," however, in maintaining the integrity of the composite cube by helping to maintain the alignment of the subcubes. Because of this cooperation in function, I conclude that the internal faces are "associated with" the means for "releasably maintaining" the Rubik's Pocket Cube-Japan.

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[6] The subcubes of the Rubik's Cube-Japan slide around on the surface of an internal sphere in the same manner as the shell pieces of the Gustafson puzzle. The "tongues" or "tabs" which fit into receptacles on the surface of the sphere are mounted on posts which are supported by the rear surfaces of the *external* faces and do not touch the *internal* faces.

[26] Even if the Japanese puzzle did not literally infringe Claim 9, however, I would nevertheless conclude that infringement has occurred under the doctrine of equivalents. "Under the doctrine of equivalents, an accused product that does not literally infringe a structural claim may yet be found an infringement "if it performs substantially the same function in substantially the same way to obtain the same result' as the claimed product." *Hughes Aircraft Company v. United States*, 717 F.2d 1351, 1361 (Fed.Cir.1983). Rubik's Pocket Cube-Japan is the same puzzle as the Nichols' 2x2x2; it functions in the identical manner to provide precisely the same challenge. The only difference, assuming no literal infringement, is that a tongue-in-groove, mechanical means not associated with "each of the remaining faces only" has been substituted for a tongue-in-groove, mechanical means which is so associated. Given the "quantum leap" above the prior art which the '201 patent represents, it is clearly entitled to a broad enough range of equivalents to encompass the Rubik's Cube-Japan.

VIII. CONTRIBUTORY INFRINGEMENT OF CLAIMS 3, 4 and 5

[27] The parties agree that method Claims 3, 4, and 5 can be infringed only by a puzzle user. For this reason, Moleculon has charged CBS with contributory infringement under 35 U.S.C. § 271(b), rather than with direct infringement. Section 271(b) reads simply:

> (b) Whoever actively induces infringement of a patent shall be liable as an infringer.

CBS is liable under this statute, according to Moleculon, because it has furnished others with a puzzle and accompanying instructions which facilitate and encourage their infringement of Claims 3, 4, and 5.

CBS first asserts that one using a Rubik's Cube in accordance with Ideal's directions would not infringe these claims. In support of this argument it suggests a number of distinctions between Claims 3, 4, and 5 and the operation of the Rubik's Cube.

However, each is inconsistent with the interpretations of the patent claims I have heretofore adopted and does not provide a basis for a holding of no contributory infringement.[7]

CBS' second argument is that there can be no finding of contributory infringement absent a finding of direct infringement and that there has been no evidence of anyone solving a Rubik's puzzle using the method of Claims 3, 4, and 5. While this contention merits more extensive discussion, I find it unpersuasive.

I assume, without deciding, that Moleculon has the burden of proving by a preponderance of the evidence that there has been direct infringement of the method claims within the United States.[8] I further assume, without deciding, that this means

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[7] Those suggested distinctions are:

(a) no Rubik's puzzle infringes because its pieces are not "cubes;"

(b) no Rubik's puzzle infringes because it cannot be restored to its pre-selected pattern (assuming three set/three axis randomization) by rotating only first and second sets or by rotating about only a first and second axis;

(c) no Rubik's puzzle fits the description "engaging eight cube pieces as a composite cube" because this cannot be done with just eight pieces in a 3x3x3 or 4x4x4 cube and because no external pieces of any Rubik's puzzle can be engaged without employing additional pieces;

(d) neither Rubik's Cube nor Rubik's Revenge fits the description "rotating a first set of cube pieces comprising four cubes about a first axis" because you have to rotate nine cubes in a 3x3x3, 16 in a 4x4x4.

Distinctions (a) and (b) are rejected because Claim 3, 4, and 5 do not require pure cubes and are not limited to puzzles which permit rotation about only two axes. Distinctions (c) and (d) are rejected because use of the word "comprising" makes these claims "open" ones.

[8] Since the record shows that the conduct which CBS has been inducing when performed, would constitute direct infringement of Claims 3 and 5, it can be

(Footnote continued)

Moleculon must show that someone in the United States actually *solved* a particular accused device by using one of the methods described in Claims 3, 4 or 5.[9] I do not assume, as does CBS, that Moleculon must make the required showing of direct infringement by direct, as opposed to circumstantial evidence. As with the vast majority of legally relevant facts a party can carry its burden of proof as to the fact of direct infringement with circumstantial evidence. *Bergstrom v. Sears, Roebuck & Co.*, 496 F.Supp. 476 (D.Minn.1980).

Ideal has sold tens of millions of dollars worth of Rubik's Cube puzzles, several millions of dollars of Rubik's Revenge puzzles and well over a million dollars of Rubik's Pocket Cube puzzles. In the first eleven months of 1981 alone, 8,400,000 Rubik's Cube puzzles were sold by Ideal in the United States. Each of these millions of puzzles can be operated in a manner which constitutes a direct infringement of Claim 3.[10] Thus, for example after randomization through rotation of sets of cubes around two or more axes, each can be restored to its preselected pattern by rotating sets of cubes around two or more axes.

Each of these millions of puzzles has been sold with an instruction sheet which teaches the preselected pattern, randomization, the objective of restoring the preselected pattern, and the pursuit of this objective through the rotation of sets of cubes

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argued with some force that the inducement and the threat of direct infringement engendered thereby is enough to warrant injunctive relief in Moleculon's favor. *Graham Paper Co. v. International Paper Co.*, 46 F.2d 881, 886 (8th Cir.1931) ("Defendant contends there could be no contributory infringement apart from a direct infringement. A completed act of infringement is not necessary to afford ground of [injunctive] relief. Threatened infringement is sufficient."); *see Leavitt v. McBee*, 124 F.2d 938, 941 (1st Cir.1942) ("It is well settled that a court will enjoin threatened infringement."); *Anraku v. General Electric Co.*, 80 F.2d 958, 965-66 (9th Cir.1936) (threatened sales of infringing lamps sufficient basis for injunctive relief).

[9] Moleculon argues that since the invention is a puzzle, there is direct infringement of Claim 3, for example, whenever a person rotates sets of cubes around two or more axes *in an attempt* to restore the preselected pattern.

[10] The same can be said for Claims 4 and 5, but it will suffice for present purposes to discuss only contributory infringement of Claim 3.

around two or more axes.[11] Each of these instruction sheets contains a notation, "IF YOU GIVE UP . . . we've got the solution and its available by mail." Those soliciting this assistance have been sent a booklet entitled "The Solution" which offers instruction on how to solve the puzzle. Any person following these instructions successfully would directly infringe Claim 3.

Purchase of one of the accused puzzles involves more than a negligible investment. Rubik's Cube puzzles, for example, were originally sold by Ideal to retailers at a price of $6.19. This fact as well as the mind set which prompts such a purchase and the nature of the puzzle itself provide assurance that most of these puzzles have experienced substantial use and that such use has been directed to accomplishing the objective of restoring the preselected pattern.

Based on the foregoing evidence, it is clearly more likely than not that each of the three types of accused puzzles has been used in the United States to infringe Claim 3 and that Ideal, by selling these puzzles and distributing its literature, has induced those direct infringements.[12]

While this circumstantial evidence provides ample support for these conclusions, I note that they are also supported by the eyewitness testimony of Dr. Obermayer. His testimony, which I

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[11] The instructions expressly depict only rotation of sets of cubes around two axes, but implicit in the presentation is the fact that the randomization and the solution may involve rotation around more than two axes. Similarly, the instructions for Rubik's Revenge and the Pocket Cubes do not expressly teach rotation of sets of cubes as the manner of solution, but that message is implicit.

[12] Moleculon has asked me to take judicial notice that people have used Ideal's puzzles in the United States and has supported that request with literature describing their use. There is no need to take judicial notice of this fact, however, since the record evidence establishes it as well as the additional fact that persons have *solved* each of these puzzles in the United States.

credit, was that he had witnessed a "Rubik's Cubathon" at a shopping mall in Burlington, Massachusetts, during which each of approximately sixty contestants was provided with a scrambled Rubik's Cube. As Obermayer watched, many of these contestants returned their Rubik's Cube to its preselected pattern. While this witness could not say that any contestant rotated sets of cubes around two or more axes, it is more likely than not, given the competitive nature of the Cubathon, that the cubes had been randomized in a way which required such rotation in order to restore the preselected pattern. Based on Obermayer's testimony, I conclude that the Rubik's Cube puzzle was used to directly infringe Claim 3 of the '201 patent in Burlington, Massachusetts, and that Ideal, by marketing the Rubik's Cube and sponsoring the Rubik's Cubathon, induced that infringement.

IX. CONCLUSION

For the foregoing reasons, I conclude (1) that Claims 3, 4, 5 and 9 of the '201 patent are valid, (2) that CBS has induced infringement of Claim 3 by selling and by instructing others in the use of Rubik's Cube, Rubik's Revenge, Rubik's Pocket Cube-Taiwan and Rubik's Pocket Cube-Japan, (3) that CBS has infringed Claim 9 by manufacturing and selling Rubik's Pocket Cube-Taiwan and Rubik's Pocket Cube-Japan, and (4) that CBS is not entitled to an award of counsel fees.

United States Court of Appeals for the Federal Circuit

MOLECULON RESEARCH CORPORATION,

Appellee,

v.

CBS, INC.

Appellant.

Appeal No. 85-2096

Before BALDWIN, NIES, and BISSELL, *Circuit Judges.*

ORDER

A petition for rehearing having been filed in this case, UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, denied.

The suggestion for rehearing in banc is under consideration.

FOR THE COURT

Francis X. Gindhart, Clerk

Date

cc: Mr. Lewis H. Eslinger
Mr. Robert X. Perry, Jr.

United States Court of Appeals for the Federal Circuit

MOLECULON RESEARCH CORPORATION,

Appellee,

v.

CBS, INC.,

Appellant.

Appeal No. 85-2096.

Judgment

ON APPEAL from the UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE *in CASE NO(S).* 82-289-WKS

This CAUSE having been heard and considered, it is ORDERED and ADJUDGED:

AFFIRMED IN PART, VACATED IN PART, AND REMANDED

ENTERED BY ORDER OF THE COURT

Francis X. Gindhart, Clerk

DATED MAY 16 1986

ISSUED AS A MANDATE: July 8, 1986

§ 102. Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless—

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States

§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in secton 102 of this title, if the differences betweeen the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made. Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

§ 112. Specification

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

§301. Citation of prior art

Any person at any time may cite to the Office in writing prior art consisting of patents of printed publications which that person believes to have a bearing on the patentability of any claim of a particular patent. If the person explains in writing the pertinency and manner of applying such prior art to at least one claim of the patent, the citation of such prior art and the explanation thereof will become a part of the official file of the patent. At the written request of the person citing the prior art, his or her identity will be excluded from the patent file and kept confidential.

§1254. Courts of appeals; certiorari; appeal; certified questions

Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods:

(1) By writ of certiorari granted upon the petition of any party to any civil or criminal case, before or after rendition of judgment or decree;

§1331. Federal question

The district courts shall have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States.

§1338. Patents, plant variety protection, copyrights, trademarks, and unfair competition

(a) The district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents, plant variety protection, copyrights and trade-marks. Such jurisdiction shall be exclusive of the courts of the states in patent, plant variety protection and copyright cases.

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Applicant: LARRY D. NICHOLS
Serial No.: 16,473
Filed: March 4, 1970
For: PATTERN FORMING PUZZLE AND METHOD WITH PIECES ROTATABLE IN GROUPS

Art Unit: 334 Examiner: Anton O. Oechsle
Patent No.: 3,655,201 Issued: April 11, 1972

DISCLAIMER

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Moleculon Research Corporation, a corporation of the Commonwealth of Massachusetts, having a place of business at 139 Main Street, Cambridge, Massachusetts 02142, represents that it was the original patentee of the above-identified patent by virtue of an assignment recorded in the United States Patent and Trademark Office on January 13, 1972 on Reel 2814 at Frame 825 and that is now the sole owner of said patent. It hereby disclaims claims 1 and 2.

MOLECULON RESEARCH CORPORATION
By Its President:

_____

Arthur S. Obermayer

Dated:
Cambridge, Massachusetts
April 19, 1983

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

In the Matter of
U.S. Letters Patent No. 3,655,201, Granted April 11, 1972
On Application No. 16,473, Filed March 4, 1970
Inventor: Larry D. Nichols
For: PATTERN FORMING PUZZLE AND METHOD WITH PIECES ROTATABLE IN GROUPS
Assignee: Moleculon Research Corporation
139 Main Street
Cambridge, Massachusetts 02142

CITATION OF PRIOR ART TO THE PATENT AND TRADEMARK OFFICE PURSUANT TO 35 U.S.C. §301

The undersigned, as attorney for the assignee above-identified, of the captioned patent hereby cites to the Office the items of patented prior art listed below which are believed to have a bearing on the patentability of claim 1 of said patent:

United States Patent 3,081,089 granted March 12, 1963 to William O. Gustafson on Application Serial No. 6,323 filed February 2, 1960;

Japanese Patent 38-10669 issued on or about June 28, 1963 to William O. Gustafson on an application claiming the priority of said U.S. Application Serial No. 6,323.

The work of William O. Gustafson in spherical puzzles having eight manipulatable surface pieces was patented by him in the early 1960's in the United States and Japan as shown in the cited prior art patents. This work, especially in the form shown in the Japanese patent cited, could arguably be said to be pertinent to the validity of claims of the captioned patent.

The Gustafson patents manifestly do not disclose the puzzles formed of cubelets rotatable in groups to form a composite, multi-piece cube or other composite, multi-piece rectangular solid that

are disclosed in the captioned patent, nor the magnetic means of releasably maintaining those cubelets in the composite also disclosed in that patent. Moreover, the Gustafson spherical puzzles comprise a minimum of nine mutually movable pieces, one of which, the spherical core, does not have a constantly exposed and a constantly nonexposed surface. It is not known and not believed that any actual Gustafson spherical puzzles were ever in public use or on sale in the United States or elsewhere.

MOLECULON RESEARCH CORPORATION

By _____

W. Brown Morton, Jr.
Reg. No. 15015
Route 1, Box 586
Warsaw, Virginia 22572
Its Attorney

May 24, 1982

BRIEF FOR APPELLEE

IN THE

United States Court of Appeals
for the
Federal Circuit

Appeal No. 85-2096

CBS INC.,

Appellant,

—v.—

MOLECULON RESEARCH CORPORATION,

Appellee.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE
(W.STAPLETON, CH.J.)

[4]

In early January, 1969, Dr. Obermayer happened to see the model in Nichols' office and expressed interest. (App. C. 93-94) Nichols explained its workings and allowed him to take it home.

EXCERPT FROM TRIAL TRANSCRIPT

[1000]

Obermayer - direct

* * *

Q. And you took it home within the new few days just to do that?

A. Yes.

Q. Who did you show it to at home?

A. I believe I showed it to my wife.

* * *

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